COAL

UNIVERSITY OF MICHIGAN
NOV 26 1957
MAIN READING ROOM

HEARINGS

BEFORE THE

SPECIAL SUBCOMMITTEE ON COAL RESEARCH

OF THE

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS HOUSE OF REPRESENTATIVES

EIGHTY-FIFTH CONGRESS

FIRST SESSION

ON

THE ESTABLISHMENT OF A RESEARCH AND DEVELOPMENT PROGRAM FOR THE COAL INDUSTRY

MARCH 9, 1957, AT HENRYETTA, OKLA.

MARCH 11, 1957, AT PUEBLO, COLO.

MARCH 26, 1957, AT WASHINGTON, D. C.

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COAL

SATURDAY, MARCH 9, 1957

HOUSE OF REPRESENTATIVES,
SPECIAL SUBCOMMITTEE ON COAL RESEARCH OF THE
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
Henryetta, Okla.

The special subcommittee met, pursuant to notice, at 10 a. m., in the Pittsburgh Plate Glass Supervisors Club, Hon. Ed Edmondson (chairman of the special subcommittee) presiding.

Mr. EDMONDSON. The Subcommittee on Coal Research of the House Committee on Interior and Insular Affairs will now be in session.

This is the fourth in a series of field hearings which this subcommittee has been conducting across the United States to inquire into the problems of the coal industry and associated industries, and to secure from representatives of that industry, from interested State agencies, from representatives of the United Mine Workers, other organizations, and from citizens at large their recommendations as to what the Government can do or what the Government should do to be of assistance in a constructive way to the coal industry.

In a sense, this committee is conducting a research project of its own. We want to know what industry feels about the present program of the Bureau of Mines. We want to know what the people most interested in the coal industry feel is wrong with the present program, if there is anything wrong with it, and what they think is right about it, that they approve of. We want to know what your ideas and your suggestions are to your Congress as to what we can do constructively to be helpful in this industry at the present time.

We have had some very interesting hearings already in the State of Pennsylvania, in the State of Virginia. We expect to go on from here to Colorado, and we hope to hold several additional field hearings in other coal-producing areas before we conclude our hearings in Washington. We have had some splendid suggestions already from the field, we have looked at some most interesting things in other parts of the country; and we are hopeful that we will have some further interesting and helpful information here in Oklahoma.

I certainly want to express my appreciation to the Chamber of Commerce of the city of Henryetta and to the Pittsburgh Plate Glass Co. for making available these splendid facilities for the hearing.

If there is any person present who wishes to be heard in connection with this hearing, let yourself be known to the staff member, Mr. Soule, and we will certainly be glad to hear you. We are going to stay here until the last witness has been heard.

If there are witnesses with prepared statements, we would be very happy to receive those statements in advance of your testimony, but

it is not necessary to have a prepared statement, and we will be very glad to hear any person who has anything constructive to offer in this field.

Our first witness is a man who already has established, I think, a nationwide reputation for himself in the field in which he is working. He is the head of the State Department of Commerce and Industry, and he is the man who I think is doing a wonderful job of helping to promote the industrial future of Oklahoma. I am very pleased that he could accept our invitation to be a witness here today. He has a noon engagement elsewhere, so we are going to ask him to be our first witness this morning. He represents our fine Governor, The Hon. Raymond Gary, and I want to call as our first witness Dr. Randall Klemme. Would you take a seat at the table, please.

We are very happy to have you here, sir, and we would be delighted to hear from you as to your evaluation of the coal industry in Oklahoma, its prospects, and what can be done in the way of research and development to aid it.

STATEMENT OF RANDALL T. KLEMME, DIRECTOR, OKLAHOMA DEPARTMENT OF COMMERCE AND INDUSTRY

Mr. KLEMME. Mr. Chairman and members of the committee, my name is Randall T. Klemme. I am director of the Oklahoma Department of Commerce and Industry.

First, on behalf of Governor Gary and the people of the State of Oklahoma I would like to extend to the committee our heartfelt thanks for coming and giving us an opportunity to lay our problems before you.

I am by training an economist and, therefore, do not pretend to speak in the technical sense as the witnesses which you have here today will.

I think it would be of interest to the committee to know that in the early history of the State of Oklahoma the first great industry of the State other than agriculture was mining. We are known today perhaps more for our oil resources, our agricultural resources, and due to the kind assist of industries from Pennsylvania, such as the Pittsburgh Plate Glass and the county of Representative Saylor, for our growing industry.

However, if you go back into history—and Oklahoma is celebrating its 50th anniversary of statehood—even before statehood coal mining was our great industry. The coal-mining industry of Oklahoma, as is true of the Nationas a whole, has had its up and downs, and today coal operations in this State are perhaps at an alltime low.

We are, however, quite concerned that in this dynamic and changing economy of the country we do everything to explore the possibility of using these tremendous coal resources which are present in this great field which extends from Iowa down through Oklahoma and central Arkansas.

A year ago we commissioned an outside engineering firm to make an analysis and study of the resources of the State of Oklahoma. We wanted to get an unbiased outside evaluation of what were the potentialities of this area. We found from this report, along with the reports of the United States Bureau of Mines, the fact that, al-

though the primary purpose of coal production in the early days was for space heating, the development of low-cost substitutes for this type of fuel mean that the future of the coal industry apparently lies in more wise utilization of coal through coking and through other processes and through the development of its byproducts.

Now what we are hopeful of is that, in view of the fact here is a great industry—at least as far as our State is concerned this great industry is nearly prostrate. We realize that this is part of the dynamic character of the economy of the country as a whole. Yet we feel that today more than ever before there is need for sound research into methods and ways of utilizing this great hydrocarbon source, if not for space heating, then for the thousand and one byproducts that come from coal and from its development.

To this extent then the State of Oklahoma is going to do all that it can to develop a research program directed toward greater and wiser utilization of this resource.

We have tremendous reserves here. I think figures I have seen quoted, which are perhaps dangerous because they are general, indicate that within the State of Oklahoma we have coal reserves equal to a hundred years' consumption at the present rate. It is our duty as a State development agency to do all that we can to try to find ways to utilize these resources.

On the other hand, we are, as you know, a small State, and therefore, because this problem is not particular to Oklahoma alone, we would welcome an expanded program of research on the part of the Federal Government that would benefit all States that face this problem. We, in turn, stand ready to do our share in trying to put this program forward and to develop it.

We are concerned about the condition of our miners, we are concerned about the condition of our mine owners. But more important, we are concerned about the conditions of the country as a whole and the wisest utilization of these resources which we have.

Mr. Chairman and committee members, I would be glad to answer any questions. I know you have many witnesses. I apologize for the brevity of my remarks, but I did this to allow you to ask any questions you may have.

Mr. EDMONDSON. Dr. Klemme, how long has your department of commerce and industry been in existence?

Mr. KLEMME. As a department of commerce and industry almost 2 years, but before that time, Congressman Edmondson, we had a division in the Oklahoma Planning and Resources Department known as the division of industrial planning. However, we have existed as a department for just 2 years.

I might say for the benefit of those who are here, the philosophy of our department—and I direct this particularly to the members of the committee from the East—we are not really trying to pirate industries out of other areas. We believe that in this growing economy, with the 16 million people that will be here in the next 20 years, some place must be found for an expansion of industry. That is the thing we are interested in. We offer no tax concessions to attract industries here. We want the growth industries, we want the expansion, and I might say we have very fine relationships with other States, particularly the East and Middle Atlantic area.

Mr. EDMONDSON. Dr. Klemme, do you have a research program under your department?

Mr. KLEMME. Yes, sir; we do. We have a research department, and it was through this research department that we made this study I referred to of a year and a half ago.

Mr. EDMONDSON. What is the budget in your research?

Mr. KLEMME. Our budget, of course, was small. The last biennium we had $450,000, and out of that we spent nearly $75,000 on research. We do call upon the Bureau of Mines, the Oklahoma Geologic Survey and so on. But we are asking the State legislature this time for a substantial increase in our appropriations so that we may do more research in these fields which we feel are important to the future of the State and of the Nation.

Mr. EDMONDSON. Do you have any specific plans for a coal-research program in Oklahoma?

Mr. KLEMME. Yes, sir; we do. This is a premature announcement because we are appearing before the Senate Committee on Appropriations of the legislature on Wednesday; but I will say for the benefit of the committee here that we have earmarked $50,000 for research to be used either to supplement the work of existing organizations in the field or for independent research in the development of coal and coal byproducts in the State. This will amount to nearly a fourth of our research budget for the next 2 years. That is how important we think this coal and coal industry is in the State.

Mr. EDMONDSON. That is a splendid thing, and I am very glad to hear it. I am glad my friend Senator Stipe is here to hear your plans include that program.

Mr. KLEMME. This depends, of course, on our getting the appropriation.

Mr. EDMONDSON. Knowing Senator Stipe's interest in the coalfields in his area, I know you will get enthusiastic support from him in that endeavor.

Congressman Saylor, do you have any questions of the witness?

Mr. SAYLOR. Yes, Mr. Chairman.

I want to congratulate you, Dr. Klemme, on your statement. A number of the questions I have to ask you may seem a little routine, but I want to establish it in the record so that we can straighten it out, and somebody that reads the record later on will then know the full story.

Does the State of Oklahoma have a bureau or department of mines?

Mr. KLEMME. We have an Office of the Oklahoma Mine Inspector, and Mr. Malloy, the mine inspector, is here and will testify before the committee today, I believe, sir.

Mr. SAYLOR. How long, if you know, has the State had such an agency?

Mr. KLEMME. I cannot give you the exact years on that. I am sorry. We have had it for a number of years. It is one of the older offices of the State government.

Mr. SAYLOR. The research which you have set up in your present budget and in the one which you contemplate in the future includes other items besides coal. Do you feel that you are giving to the mining industry in the State of Oklahoma its full share of funds for research?

Mr. KLEMME. That question is not easy to answer, as you know, Representative Saylor. I think I indicated that out of the funds which we have requested we are proposing to devote from a fifth to a sixth of the funds so obtained for research to this particular field.

In terms of the value of coal produced in the State this is a much heavier percentage than we are giving to other areas of development. However, we feel—and based upon an outside evaluation—that we are justified in so doing because the coal industry obviously must be going through a transition as far as use is concerned. Therefore, I would feel that in terms of our own developmental program we are not gambling but we are involving in coal research on a heavier scale than we are in other areas that are also developing within the State.

I hope my answer is sufficient.

Mr. SAYLOR. The reason I asked that question—after all, Oklahoma is known as one of the great oil producing States. It has come to the attention of this committee in the course of its hearings in Washington and in the field that the oil industry, as such, has devoted almost untold millions each year to research, and the coal industry has been in such dire straits for many years that they have been unable to actually expend any comparable figure.

I know that the State of Pennsylvania has suddenly realized that they are going to have to spend a disproportionate share of their money for coal and coal research.

Would you intend to use the facilities of the universities here in attempting to assist you in your research?

Mr. KLEMME. We draw upon all facilities on this. We have working relationships with other State agencies, of course, which is laid down by law. In undertaking this work our proposal is either through the university, the Oklahoma Geologic Survey, or through an independent research agency. I would prefer not to name any now because we have several that we are considering. We will sit down with representatives of the coal industry and try to map out a program.

We have not taken any steps on this, as you well know, because it is impossible to do this until you know what the financial perimeters of your approach will be on it. But it will be our purpose to bring together the interested parties as an advisory group to the department, and then bring in the people from our Bureau of Mines experiment station, from the independent but recognized research agencies of the region, the university and Oklahoma A. and M. College and develop our program so that we will not duplicate but rather supplement the work which is going on in other areas.

Mr. SAYLOR. Dr. Klemme, with regard to the number of men in the industry, could you answer those questions or would you rather have the later witnesses do it?

Mr. KLEMME. I would rather have them present their side of it.

Mr. SAYLOR. Your representative of the State Bureau of Mines?

Mr. KLEMME. That is correct.

Mr. SAYLOR. That is all.

Mr. EDMONDSON. Judge Chenoweth, do you have any questions?

Mr. CHENOWETH. I was interested in the report of the engineering firm that you hired to make this survey. What did they say about the future of the coal industry in Oklahoma?

Mr. KLEMME. They pointed out to us that the greatest future for coal in Oklahoma lay in the development and greater utilization of

metallurgical coals in coking, carbonization, both for the production of coke and for the development of industries associated with the by-products developed therefrom.

There was a feeling on the part of those who made the study the relative position of space heat would not be changed markedly in this area in the foreseeable future.

Mr. CHENOWETH. In other words, unless new uses for coal could be found——

Mr. KLEMME. That is correct.

Mr. CHENOWETH. Coal would not continue to be any substantial portion of your economy?

Mr. KLEMME. It would continue to be reduced to where it is at the present time—less than a substantial amount.

Mr. CHENOWETH. What percentage of your State's income would you say comes from the coal industry?

Mr. KLEMME. These figures are very——

Mr. CHENOWETH. Just roughly.

Mr. KLEMME. In terms of relation to agriculture and to petroleum and so on, I would guess less than 5 percent. At one time it was considerably more than that. It was the second largest industry to agriculture and the second most important industry. And agriculture, of course, was the foundation of the economy of the State.

Mr. CHENOWETH. Now the number of mines and tonnage and number of miners will be given later?

Mr. KLEMME. This will be presented by later witnesses.

Mr. CHENOWETH. Thank you, Doctor.

Mr. SAYLOR. When you refer to the second industry, does that include not just coal mining but mining for zinc and lead and other minerals?

Mr. KLEMME. Just coal, because coal preceded, I believe, these other industries. On this point I could be subject to later correction, but as an industry it preceded all the others. If you read the history, as I have, of the constitutional convention of the State of Oklahoma, the great representation of nonagricultural employment was through the mineworkers as such. They constituted a very important segment of the State's population.

Mr. CHENOWETH. Just one other question, Mr. Chairman. What other mining activities do you have in Oklahoma?

Mr. KLEMME. We have the mining of lead and zinc in the tristate area in the northeastern corner of the State of Oklahoma. In addition to the shaft mining operations which you find in this area, we have strip-mining activity in the northeast area which lies north of Okmulgee and Muskogee up toward Catoosa. These are the principal mining industries.

Mr. CHENOWETH. Outside of the coal industry, what percentage of your income would come from your mining industry?

Mr. KLEMME. I would say that the percentage of income from non-coal operations at the present time—and this is a guess because I cannot document this—is greater than it is from coal, our lead and zinc, although, as you well know, the operations in the lead and zinc tristate mining area have also declined, and the highly erratic market for lead and zinc and conditions of water damage to the tristate area mines have left many of them in a condition where it is highly questionable whether they would ever be reopened because of the cost.

Mr. CHENOWETH. In other words, at this time mining operations of any type are at rather low ebb in the State of Oklahoma?

Mr. KLEMME. That is correct.

Mr. CHENOWETH. That is all, Mr. Chairman.

Mr. EDMONDSON. Mr. Soule, do you have any questions?

Mr. SOULE. No; I have not.

Mr. EDMONDSON. Thank you, Doctor, for a fine statement and for the encouraging news about your plans to have a State research program.

Mr. KLEMME. Thank you, Mr. Chairman, for the chance to testify.

Mr. EDMONDSON. Thank you very much.

Some additional people have come in since the announcement at the opening of the hearings. If there are any people who have come in that desire to be witnesses, we would be very glad to have you give your names to Mr. Soule, who is on my left, and also, if you will, indicate to him whether you are pressed for time in connection with your appearance here or whether you can wait until the approximately 12 witnesses we have lined up have been heard.

Our second witness will be our State mine inspector for Oklahoma, Mr. John Malloy.

Is Mr. Malloy present?

Since he is not, we will move on to some of our industry witnesses. I had announced previously that Mr. Phelps, of Pittsburg, Kans., would be our first industry witness; is he in the room?

Mr. PHELPS. Yes, sir.

Mr. EDMONDSON. Would you come forward please, sir, and have a chair.

Mr. Phelps is, I believe, the vice president of the Pittsburg Midway Coal Co.; is that correct, sir?

Mr. PHELPS. Yes, sir.

Mr. EDMONDSON. At Pittsburg, Kans.?

Mr. PHELPS. Yes, sir.

Mr. EDMONDSON. We are very pleased to have you with us, sir, and would be delighted to have your comments upon the conditions of the coal industry in the State of Kansas and in the Pittsburg area and upon your recommendations as to a research and development program with or without Government assistance in the future.

STATEMENT OF E. R. PHELPS, VICE PRESIDENT, PITTSBURG MIDWAY COAL MINING CO., PITTSBURG, KANS.

Mr. PHELPS. Mr. Chairman, I represent Pittsburg Midway Coal Mining Co., in charge of operations for the company. We operate mines in six States—Colorado, Kansas, Missouri, Illinois, Kentucky, and Oklahoma. We have 7 mines operating, and 6 of them are strip mines and 1 of them is an underground mine.

I also today am representing the Southwestern Operators Association, which is made up of the operators in Kansas and Missouri, who are in district 14, United Mine Workers area. We have a particular problem, I think, in Kansas. I would just talk about it primarily. We have very thin seams in Kansas to operate on. We are stripping for 18 inches of coal, about as thin a seam as a strip any place unless it is a special-purpose coal.

Ours is bituminous coal, and we strip for 18 inches of coal and go as deep as 50 and 60 feet for it. This is coal that could not be mined by any other method than the strip method. By the stripping of it we get 100 percent recovery.

I am also a member of the National Coal Association research committee, and the whole industry, of course, is interested in this research project. Any statements I make on it are on my own statements and they do not represent the statements of the National Coal Association or all of the people who are members of the association.

In Kansas, we are right in the middle of the oil-and-gas fields. We have pretty stiff competition. We are not looking for any subsidies of any type. We are interested, I would say, primarily in better utilization of coal so that our market would be more available and that we can be more competitive for the markets.

We have gone through quite a change in the coal industry. Here a few years back 85 percent or so of our business was for railroad use. Now in our area if we sell 2 or 3 cars a year to them, it is just a little station coal.

We have been able to switch our production around so that we can be competitive with oil and gas even right in Kansas and Oklahoma, which is well known for oil and gas, by improving our techniques and so on.

We certainly need some work done on research of better utilization of our coals. I think from the standpoint of burning more raw coal and having conservation in the coal by using more of it.

The primary problems as far as mining techniques and equipment I think we can handle ourselves.

When you see all the work that all industries are doing on research we are certainly far behind. It is a difficult task. The mining industry is made up of so many small groups, so many small companies, to get any potentials they have toward research together is almost an impossible problem.

We are working on a diminishing product—as we mine it is gone—and we have to continually put our earnings back in capital so that we can have modern equipment to stay competitive.

For my part, I would like to see any research program be highlighted on the utilization of coal, and let us go ahead and fight our other battles as far as staying competitive with the other units.

There is a lot of money being spent on atomic energy and I think it should go on. But the coal industry as a whole could well stand some help in utilizing the coal. And I am not saying that selfishly to help us out, I am talking about the country as a whole. It needs the knowledge of the use of coal. We have a tremendous reserve of energy in coal, and we have a lot of good companies that can mine the coal. We proved that during the last war when coal came up and met the challenge for the energy requirements. I think we can do it again, but we need to do a little research and not just ride along on the old methods.

We had a meeting here 6 or 8 months ago with the purchasing agent of one of the big power companies, the South Georgia Power, and his theory was along that line—that the coal industry had started the power companies in business, then gas came along and became a little cheaper and it left the coal industry kind of alongside; and they felt

kind of like they ought to go back to them and stay with them because they were going to need them again. I think a lot of industries are practicing that.

I feel like a research program that would have definite objectives would be helpful.

Mr. EDMONDSON. Thank you, Mr. Phelps, for a very fine statement.

Does your company at present have a research program of any kind on the utilization of coal?

Mr. PHELPS. No, we do not.

Mr. EDMONDSON. Are you participants in the Bituminous Coal Research, Inc.?

Mr. PHELPS. Yes, sir.

Mr. EDMONDSON. You are?

Mr. PHELPS. We are participants in that and the National Coal Association, and that is our only participation in that type of research. There is no way I know of to go at it in a small way. It is a big project and it would take a lot of cooperation between a lot of people to get the job done.

Mr. EDMONDSON. Is most of your Kansas production for industrial purposes?

Mr. PHELPS. Practically all of it.

Mr. EDMONDSON. Metallurgical coal primarily? Or utilities?

Mr. PHELPS. Utility and industry. I would say our coal for home use is down to less than 8 percent of our total production.

Mr. EDMONDSON. What is your production in the mines per man per day? What can a man mine?

Mr. PHELPS. In Kansas?

Mr. EDMONDSON. Yes, in Kansas.

Mr. PHELPS. We will mine on a per-day basis right at 30 tons, if you just figure the man that day. Those figures are hard to tie down because it depends on how you figure them. Actually, on tons per man-day we figure every man at the mine from the superintendent right on down and all the work that is done during the whole year and tie that out with our tons. We will average somewhere around 15 to 17 tons per man-day.

We have a yard shovel working on this seam. We have moved dirt as cheap as 4 cents a yard, but one of those machines costs $1,800,000 and you have to keep it working pretty quick. In Kentucky we have places where we have 18 feet of coal that we are mining in 3 seams down the same length. Here we are mining 18 inches.

Mr. EDMONDSON. Have you had any problem on the movement of your coal? Have you had any car shortages, any interruptions of any substantial duration due to coal-car shortages?

Mr. PHELPS. This last 2 years we have had several of them that have been serious as far as we are concerned. If we once lose an order it is gone.

As I say, my mines are pretty well spread out, and this fall that car shortage was universal. We were short in Colorado, we were short in Kansas and Missouri, and in Illinois and Kentucky; every place we ran out of cars.

The story was they were up in the iron range. But in Kentucky we have quite a little trouble on car shortage regularly. Out here there are not too many mines any more, so as a rule it is not too

critical; but our Kentucky mines have a lot of trouble with car shortage regularly.

Mr. EDMONDSON. Do you endorse the recommendations of the National Coal Association that were made in January with regard to research?

Mr. PHELPS. Yes, sir; I do.

Mr. EDMONDSON. Do you feel they have the support of the industry in the Pittsburg area?

Mr. PHELPS. They have in our Southwestern Operators Association which has endorsed it. We are very much in favor of the project pretty well as it is set up to date.

Mr. EDMONDSON. Do you have any questions of the witness, Mr. Saylor?

Mr. SAYLOR. Yes, Mr. Chairman, I do. First, Mr. Phelps, I would like to congratulate you here on presenting your story as a representative of an operating company.

Can you tell us, roughly, how many employees you have, your overall picture?

Mr. PHELPS. In our company right now we have 570 miners and 195 company men.

Mr. SAYLOR. Do you know what the maximum employment of your company was? In other words, do you know the top figure that you have employed?

Mr. PHELPS. That is our top figure because we have been expanding in the last several years, operating more mines.

I think maybe the point you want to get across—we used more men earlier. At our mine in Kansas we were operating from 1929 to 1950—we operated 2 mines through 1 central cleaning plant, and we had 250 men working at that time. In 1950 we built a new plant, a more modern plant, and started operating directly through it. We now have a hundred men working there. So that we have less men and are producing about the same amount of coal at this particular point.

Mr. SAYLOR. The reason I ask that: In many of the areas where we have been both representatives of the companies and the unions have come in and told us that at one time they had high figures of employment, and it is down some places as low as 15 to 20 percent of the original number of people they employed.

Mr. PHELPS. As I say, our case is misleading because we have increased our production from about 500,000 to maybe 3 million tons a year. So we naturally have more men. We have more mines operating. But in this 1 particular mine we had 250 men and we are now operating a hundred men.

Mr. SAYLOR. I would like to say this to you: I am delighted to hear your statement with regard to atomic energy. Your attitude on atomic energy to me indicates the entire cooperation that I have gotten from every representative of the coal industry—that they have absolutely no desire to see research cut down on atomic energy, but that they feel in view of the fact they do represent another important source of energy to this country, with tremendous known reserves, that a reasonable amount of money should be spent by the Federal Government in behalf of that industry because it has been called upon twice in recent years to actually be the source of energy to carry us through war, and that is World War I and World War II.

Do you feel that you might be in a better position competitively, Mr. Phelps, if Congress considered increasing the depletion allowance in the coalfields to compare something with the way they do in other resources?

Mr. PHELPS. I feel we would be. That would be a help in that it would let us put more money back into our operations. We have a dwindling resource, and any kind of a business that operates that way needs some help from that standpoint. It would certainly be a big help to us if we could get a little higher depletion figure than we have.

Mr. SAYLOR. Then let me follow that up with this question: As a representative of the Southwestern Operators, do you feel that, if Congress would increase the depletion allowance for coal, your companies would then be in a position to assist in some manner in this research program?

Mr. PHELPS. You are asking me to speak for other people's purse strings, and I would have to state it as far as I am personally concerned for our company. I am sure that we would be interested in cooperating with the Government or with any agency that would work out some worthwhile projects in the way of research, and particularly so if we had some means as you are suggesting to help us along that line.

Mr. SAYLOR. Again I would like to congratulate you because, even though I have never met you before I talked with you, now that again is the same thing I have found with the operators wherever we have talked to them; that there is not a desire to put any increased depletion allowance wholly into the assets of the company, and that they are perfectly willing to see to it that a portion of it, if Congress would take that as one of the means of assisting industry, would go to help in a research program. That is all.

Mr. EDMONDSON. Judge Chenoweth.

Mr. CHENOWETH. I was interested in your Colorado coal operations. Where do you operate in Colorado?

Mr. PHELPS. Steamboat Springs, the Osage mine.

Mr. CHENOWETH. Is that strip mining?

Mr. PHELPS. Yes.

Mr. CHENOWETH. How long have you been in that section of the country?

Mr. PHELPS. We opened that mine in 1949.

Mr. CHENOWETH. Tell us about your operation there. Are you increasing production?

Mr. PHELPS. No, sir; we are not increasing too much. The market there has been pretty tight. Probably you are as familiar with it as I am. We moved the Osage mine from Ottawa, Ill., out to Colorado in 1949. I am quoting these figures from memory, but the production in Colorado was on the magnitude of 1,200,000 tons in that area at that time in 1949. Last year it was right around a half a million.

Mr. CHENOWETH. Yes.

Mr. PHELPS. I believe that is correct. We have managed to hold our position as far as the percentage is concerned.

Mr. CHENOWETH. How many men do you work there?

Mr. PHELPS. We have 35 men.

Mr. CHENOWETH. How many did you formerly have?

Mr. PHELPS. We had around 60 when we first started. Our mine is capable of 285,000 tons a year, according to the ratios we have.

Mr. CHENOWETH. Where does that coal go?

Mr. PHELPS. It all goes to eastern Colorado, western Kansas, Nebraska.

Mr. CHENOWETH. Is that domestic coal?

Mr. PHELPS. Domestic, and we also have industrial coal that goes to Colorado Public Service and the sugar company. There is a very limited market for coal.

We moved to Colorado with the idea that industry was moving west and it was going to be quite a movement of industry there. The gas-lines have come in and kept pace with the increase in industry. I do not know that the industry moved quite as fast as we thought it would, and certainly the gas came quicker than we thought it would. So that we have more competition there than we had in our minds.

Mr. CHENOWETH. Tell me something about your company. How old a company is it?

Mr. PHELPS. Our company was founded in 1885 and started mining up northeast of Pittsburg, Kans., underground. In 1916 we started one of the first strip mines in Kansas. We have been stripping in Kansas around Pittsburg, and at this time we are now about 25 miles southwest of Pittsburg. We have produced 500,000 tons of coal on this 18-inch seam out there with a hundred men.

Mr. CHENOWETH. Do you live in Pittsburg?

Mr. PHELPS. Yes, sir.

Mr. CHENOWETH. How long have you lived in Pittsburg?

Mr. PHELPS. I was born and raised in Kansas and worked in a coal-field in Illinois after I graduated from college, and I came back to Kansas after the war, and have been there since 1946.

Mr. CHENOWETH. Did you know my old friend Tom Winter, who so ably represented that district for many years in Congress?

Mr. PHELPS. Yes, sir.

Mr. CHENOWETH. The district is now very ably represented by my colleague, Myron George.

Mr. PHELPS. That is right.

Mr. CHENOWETH. What do you think is the future of the coal-mining area in Kansas, that southwest area?

Mr. PHELPS. I think I could tell you that in just one statement. We started 2 weeks ago operating a new dragline, a 20-yard dragline that we just purchased and erected down there in our Kansas mine.

Mr. CHENOWETH. I understand you are expanding all the time.

Mr. PHELPS. Yes, sir.

Mr. CHENOWETH. Is that true of other coal companies in the Pittsburg, Kans., area?

Mr. PHELPS. There are not too many other coal companies in the Pittsburg area.

Mr. CHENOWETH. How many miners would you say were working there 30 years ago?

Mr. PHELPS. I am informed by Mr. Allai we had 15,000 men 30 years ago, and possibly have 700 or 800 now in Kansas. The same thing is true in Missouri.

Mr. CHENOWETH. I did not want the committee to get the impression from your testimony, Mr. Phelps, the coal-mining industry was expanding, prosperous, and flourishing in the southwest area, because that is certainly not the case as I understand it.

Mr. PHELPS. That is correct. It is a struggle, but we are trying to expand.

The point I made was that we have confidence in the future of coal in Kansas or we would not be spending that kind of money for this new machinery.

Mr. CHENOWETH. How does your Kansas tonnage alone, leaving out the other States in which your company operates, compare with 30 years ago?

Mr. PHELPS. In our company we are producing 500,000 tons a year, and we were up to 890,000, along in there.

Mr. CHENOWETH. You apparently have been more aggressive and more enterprising than some of the other companies. The fact that you are expanding indicates you intend to stay in the coal business. Of course, you have done this by expanding in other States somewhat?

Mr. PHELPS. That is right.

Mr. CHENOWETH. You are not depending on your Kansas operations alone?

Mr. PHELPS. No, sir. We are expanding primarily by acquiring new properties and putting in new mines.

Mr. CHENOWETH. You are doing that now, are you, right along?

Mr. PHELPS. Yes, sir.

Mr. CHENOWETH. That is very interesting. We are glad to have you in Colorado and hope your production continues to increase.

Mr. PHELPS. We do not want to leave, but it is kind of a hard fight.

Mr. CHENOWETH. I realize that.

That is all, Mr. Chairman.

Mr. EDMONDSON. Mr. Metcalf.

Mr. METCALF. I am glad to be here in time to hear the last part of your testimony.

I have very little to add, except the reason I was late, as perhaps you were told, I attended the Westinghouse science search dinner last night, and a young man from my district was 1 of the 40 winners. I would also say to you that a young man from Kansas was one of the winners, and his research program was "chemistry in coal." It might be that young man is going to solve the problems you have in the coal areas of Kansas.

That is all I have.

Mr. EDMONDSON. Mr. Soule.

Mr. SOULE. No questions.

Mr. EDMONDSON. Thank you very much, Mr. Phelps. We appreciate your being with us.

Mr. PHELPS. I appreciate the opportunity to meet with you gentlemen.

Mr. EDMONDSON. Do you have any associates from Pittsburg, Kans., that you want to call on who are here, or introduce?

Mr. PHELPS. I would like to introduce Mr. Fred Perkins, who is president of the Pioneer Coal Co., in Missouri. He is the representative of the Missouri Coal Operators.

Mr. EDMONDSON. Mr. Perkins, we would be very pleased to hear from you if you have anything to add to what Mr. Phelps has said.

STATEMENT OF FRED PERKINS, PRESIDENT, PIONEER COAL CO., MISSOURI

Mr. PERKINS. I think Mr. Phelps pretty well covered the situation in Missouri as well as Kansas. Our mines are all on what we call the same thin seam of coal. We are confronted with about the same operating problems that they are in Kansas. In other words, generally speaking they are low-profit mines because of the high ratio due to the thinness of the seam, and our basic operating problems are very much what they are in Kansas. From that standpoint, I think Mr. Phelps has pretty well covered our conditions in Missouri.

Mr. EDMONDSON. Do you also endorse the National Coal Association's recommendation for a research program?

Mr. PERKINS. Yes, sir.

Mr. EDMONDSON. If there are no other questions, thank you very much. We are happy to have you here and are glad Missouri has a representative here.

I think there was another Missouri representative that I announced earlier, Mr. Merle Kelce.

Mr. PERKINS. He was unable to be here.

Mr. EDMONDSON. Mr. Podpechan represents the same company, I believe.

Mr. PODPECHAN. I am manager of one of their mines here in Oklahoma.

Mr. EDMONDSON. We will get to you in just a little bit.

Mr. PODPECHAN. Thank you.

Mr. EDMONDSON. What we are trying to do is to take the folks from the farthest distances and call on them first in this hearing. This is a neighborly gesture toward them. Once again, I will say if there are any witnesses from nearby here who have a time problem, let us know and we will try to cooperate with you.

Mr. Henry Allai. Mr. Allai is the head of the United Mine Workers, District 14, I believe.

Mr. ALLAI. That is right.

Mr. EDMONDSON. We are very pleased to have you here and will be glad to have your statement.

STATEMENT OF HENRY ALLAI, PRESIDENT, DISTRICT 14, UNITED MINE WORKERS OF AMERICA, PITTSBURG, KANS.

Mr. ALLAI. Our workers are from Missouri and Kansas. I represent the Missouri-Kansas miners. We have contracts with the Coal Operators Association that Mr. Phelps mentioned. We have very good relationships.

I do not know as I could add anything to management's side. I do not know anything about it. But we are certainly for anything that would increase the utilization of coal in the Southwest area.

At one time we had I could not say how many coal operators, but we had anywhere from twelve to fifteen thousand miners in Kansas alone. We had around 16,000 miners in Missouri. Today I doubt we have over 2,000 in both States. This is due to gas and oil as competitive fuels. As Mr. Phelps said, we are in the center of the gas area. They have taken the industrial business. Gas and oil has taken

the railroad business. We had several railroad companies that had mines in there that went out of business.

Certainly the only people that can put on an extensive research for this area would be the Government, because I do not think that we have enough coal operators any more, and the most of them that we do have are small. Mr. Phelps' company I think is about one of the largest in the Southwest area. The rest of them are all smaller. They cannot afford to do much research. They are just local and high cost.

We certainly would be happy to cooperate in any way we can to bring back the coal business to the Southwest area if it were possible.

As I said to the chairman of the committee a while ago, I never could understand why the Government closed down that plant in Louisiana, Missouri, which we understood was a research plant of the Government in order to try to utilize more coal. We did not think that that treated us people very fair in the Southwest area because that was the only hopes we had for reviving the coal industry, and the Government closed it out.

We will be glad to do whatever we can and cooperate in any way we can. That is about all I have.

Mr. EDMONDSON. Thank you, Mr. Allai.

We had testimony in Pennsylvania, I believe, that at one time several years back the United Mine Workers offered to put up $500,000 for a research program to match $500,000 from management, from the industry, for that type of a program in research. We have had a little difficulty since then tracking down just exactly who said it and when. But you have indicated that you would be glad to cooperate in any type of research program, and I just wondered if you could shed any light on that testimony we had in Pennsylvania.

Mr. ALLAI. No, I do not know anything about Pennsylvania.

Mr. EDMONDSON. Maybe we had better save it for Mr. Fowler. He is an old Pennsylvanian.

Mr. ALLAI. Yes, he is a Pennsylvania man.

Mr. EDMONDSON. Do you have any questions, Mr. Metcalf?

Mr. METCALF. No questions.

Mr. EDMONDSON. Mr. Saylor.

Mr. SAYLOR. Mr. Allai, it is a pleasure to meet you as a representative of a great union.

Mr. ALLAI. Thank you.

Mr. SAYLOR. I am going to ask you a question we have had the same answer to everywhere along the line, and I certainly hope we get the same one from you. But I am not going to disclose what the answer has been.

How are your relations now with the operators?

Mr. ALLAI. Good. We have a good relationship.

Mr. SAYLOR. I am delighted to hear that. That seems to be the universal answer. It seems it is not the situation that has always existed between the operators and the miners, and it is good to know that the two groups that are vitally interested are now getting along the way they are.

Mr. ALLAI. You know we used to have a lot of fights and neither one got anywhere. They did not make any money and our people did not. So we decided the best way we could do is work together, and we have been getting along very well.

Mr. SAYLOR. You probably know my good friend John Ghizzoni.

Mr. ALLAI. Oh, yes.

Mr. SAYLOR. He tells me the same thing—you decided that fighting was not the solution to the problem, and sitting down around the table and trying to work out the common problem has produced a great deal better results for everybody.

Mr. ALLAI. That is right.

Mr. SAYLOR. Do you feel if the Government would have an increased research program to find additional uses for coal that it would be of benefit to the members of your union in this area?

Mr. ALLAI. Yes; I do. I understand—I am not positive about it; I am not in a position to be—but I understand that we do have a lot of coal in Kansas and Missouri that can be mined both ways, by deep mine and strip mine, if we had any sale for it. So if the Government could do anything to utilize more coal in the southwest area, I am sure we would get our share, and it would help our people.

Mr. SAYLOR. Has the situation of the roughly 30,000 men that have formerly been members of your union created a problem of unemployment in this area, or have they been able to find employment in other fields?

Mr. ALLAI. Well, we have been going through that period for 25 years or more, maybe 30 or more years. Gradually coal operators have been going out of business. Those miners that were young and could get out and get jobs did. Others that were up in years, especially after the war and during the depression days, could not get any jobs, so they just had to stay there.

It has created quite a problem in Crawford County, which is the county in which our office is, and there are quite a few miners there, insofar as welfare is concerned, because there is no job and no place for them to go.

We have had that situation in existence in that area for some 30 or 35 years. We have had a lot of homes that people have had to just walk off and leave.

A lot of the old-timers, as I say, the only thing they have now is what little welfare they can get out of it. We have had a very bad condition on unemployment during all of these years.

We had a period during the war where we had 2 or 3 plants come in that picked up a lot of it, but we have a surplus of coal miners in the area.

Mr. SAYLOR. And once he is a coal miner he never wants to do anything else?

Mr. ALLAI. Well, he does not know anything else.

Mr. SAYLOR. I am glad to find the miners out here are like the miners back in my State. That has been their training and what they want to do is mine coal.

Mr. ALLAI. I think that is typical of all people: They start out in anything, and that is what they want to stay with.

Mr. EDMONDSON. Off the record.

(Discussion off the record.)

Mr. EDMONDSON. Judge Chenoweth.

Mr. CHENOWETH. Where is your home?

Mr. ALLAI. Pittsburg.

Mr. CHENOWETH. Kansas?

Mr. ALLAI. Yes.

Mr. CHENOWETH. That is where you say the unemployment situation is more acute?

Mr. ALLAI. That is right, around that area. It is more centralized around that town.

Mr. CHENOWETH. How many coal mines in that area are there today as compared with 30 years ago, roughly?

Mr. ALLAI. We do not have anything. Mostly the companies that employed a lot of men are all out of business.

Mr. CHENOWETH. That is your large operators?

Mr. ALLAI. Yes, sir; deep miners.

Mr. CHENOWETH. Do you have a number of small operators, truck mines?

Mr. ALLAI. Not very many. The deep mines went out of business, and on account of the strip mine having a little bit cheaper cost they survived. Some of them, not all of them.

Mr. CHENOWETH. Is it all strip mining now?

Mr. ALLAI. Yes; with the exception we have a few small mines that will work 2 or 3 months in the wintertime and employ probably four or five hundred men.

Mr. CHENOWETH. In the peak period how is the production divided between strip and deep mining?

Mr. ALLAI. Of course, when we first started out it was deep mining that predominated. Then the deep mines gradually went out and it was strip mines. We do not produce as much strip mine coal now as we did 10 or 15 or 20 years ago because the business is gone, there is no sale for it, no market for it. These boys have got kind of a stabilized market now, but I cannot see anywhere it will increase unless something is done in order to use more coal.

Mr. CHENOWETH. This figure you gave was your membership in the United Mine Workers?

Mr. ALLAI. Yes.

Mr. CHENOWETH. What percentage of the coal is produced by members of your organization in that area?

Mr. ALLAI. I will say 95 percent.

Mr. CHENOWETH. Ninety-five percent?

Mr. ALLAI. Yes.

Mr. CHENOWETH. You dropped from 30,000 members to 2,000, you say?

Mr. ALLAI. That is right.

Mr. CHENOWETH. Is the number still declining?

Mr. ALLAI. Well, it has kind of leveled off a little bit now, but we used to have several of those wagon mines or truck mines. They are gradually going out of business. They use quite a bit of domestic coal. Around here the farmers do not even use it any more. They have butane tanks and all that. They do not use it.

Mr. CHENOWETH. How many days a week are the mines working in that area?

Mr. ALLAI. I think they average about 3 days. That is local.

Mr. CHENOWETH. About 3 days?

Mr. ALLAI. I think that would be at least 70 or 75 percent get about 3 days. The other 25 or 30 percent possibly get 5 or 6 days. Would that be about right, Ed?

Mr. PHELPS. I would say that is pretty close; yes.

Mr. CHENOWETH. I think that is all.

Mr. EDMONDSON. Mr. Soule, do you have any questions?

Mr. SOULE. Mr. Allai, I would be interested in knowing the depth at which coal is found in the deep mines referred to and the thickness of the seams.

Mr. ALLAI. The deep mine seam would average about 3 feet. It crops out over about a mile and a half inside the Missouri line, that is, that vein that we dig in what we call the Pittsburg area, and then it dips through the west through Kansas. I think about the deepest mines we have around there run around 275 feet.

Mr. SOULE. Steep pitch or gentle sloping seam?

Mr. ALLAI. No; they are level. It was just the croppings, and it just gradually got deeper over a period of miles. There would be no dip from pitching seam, just a level seam. It would average about 3 feet; the seam the operators are now stripping is what we call the top vein. It would be too low to work any other way.

Mr. SOULE. In Missouri do you have underground mines also?

Mr. ALLAI. Yes.

Mr. SOULE. And similar conditions?

Mr. ALLAI. The same conditions exist in Missouri as in Kansas.

Mr. EDMONDSON. Mr. Allai, one thing you mentioned was this Louisiana, Mo., experimental plant. One of the first things this committee went into when we were organized in 1956 was the Louisiana, Mo., plant. We had some hearings in which that subject was covered by Mr. Felix Wormser, Assistant Secretary of the Department of the Interior. Mr. Harry Perry, who is present at representing the Bureau of Mines, might want to comment on that at this time, if he cares to, just by way of answering any questions you might have on the subject. Mr. Perry.

Mr. PERRY. I would be delighted to either do it off the record or later, but I do not have permission to testify before the committee, only act as an observer.

Mr. EDMONDSON. Off the record.

(Discussion off the record.)

Mr. EDMONDSON. Thank you very much for being with us, Mr. Allai.

Mr. ALLAI. Thank you.

Mr. EDMONDSON. I think our next most distant point in Oklahoma from which we have a witness here is Claremore. Mr. Podpechan, would you come forward, please? Do you have anyone with you would care to have appear with you up there?

Mr. PODPECHAN. No; I do not, Congressman.

Mr. EDMONDSON. This witness is one of the best known coal men in Oklahoma, a very good friend of mine in the Second District, one whom I am very happy to have here today and pleased to welcome to the committee.

STATEMENT OF FRANK PODPECHAN, MANAGER, PEABODY MINE, CLAREMORE, OKLA.

Mr. PODPECHAN. I am manager of the Peabody Mine at Claremore, a strip mine.

I am at a loss to offer any testimony. I do not know what has already been said.

We have a strip mine there and our coal is metallurgical coal. We are probably a little more fortunate than the rest of them in that respect.

It is a very thin seam of coal, 18 inches. We strip it with two shovels up there. Our production is around 300,000 tons a year.

I will answer any questions I can.

Mr. EDMONDSON. I know that you have a very efficient operation up there, Mr. Podpechan. I have been threatening to come up and visit it for some time, but I have not had the opportunity up to now to do so.

How do your production per man figures compare with figures given for the Pittsburg, Kans., mines?

Mr. PODPECHAN. They are similar, just about the same. We are in about the same category except Pittsburg Midway—around 15 tons, something like that, in that category.

Mr. EDMONDSON. Does your company carry on any research either on its own or through participation in Bituminous Coal Research, Inc.?

Mr. PODPECHAN. We do. There is no question about that, that is, the company as a whole, because it is a large concern, the Peabody Coal Co., and we belong to the association. But as for research, I cannot answer that. Mr. Kelce is not here.

Mr. EDMONDSON. Do you have any questions, Mr. Metcalf?

Mr. METCALF. No questions.

Mr. EDMONDSON. Mr. Saylor.

Mr. SAYLOR. Mr. Podpechan, Peabody Coal Co. operates more than just at Claremore, Oklahoma?

Mr. PODPECHAN. Yes, sir. I think they have got 20 or 22 mines.

Mr. SAYLOR. In what areas, can you tell the committee, do they operate?

Mr. PODPECHAN. We operate in Missouri, Kentucky, Illinois, Kansas, Oklahoma, Ohio.

Mr. SAYLOR. Are you in the West Virginia field at all?

Mr. PODPECHAN. No, sir.

Mr. SAYLOR. This coal that you are now mining up here at the Peabody mine at Claremore, Oklahoma, at what depth do you mine?

Mr. PODPECHAN. Our maximum recovery line is 45 feet.

Mr. SAYLOR. You say it is metallurgical coal. Do you have to prepare or wash it in any way?

Mr. PODPECHAN. No; we do not. We are fortunate. We ship it raw.

Mr. SAYLOR. Where is your market?

Mr. PODPECHAN. Lone Star Steel and Sheffield Steel, Armco at Houston.

Mr. SAYLOR. So your entire production then goes into Texas?

Mr. PODPECHAN. Yes. We have a little commercial business but not very much. I would not say it would be 5 percent of our production.

Mr. SAYLOR. What are the freight charges in your area?

Mr. PODPECHAN. During the war I think we got a pretty favorable freight charge down to Houston. I think that freight rate still applies. I think it was for coal shipped out of the country at that time. I cannot tell you what that freight rate is, but freight rates on coal are terrible. There is no question about that.

Mr. SAYLOR. What railroads do you use to transport your coal?

Mr. PODPECHAN. We are on the Frisco Railroad.

Mr. SAYLOR. Has your company at this operation had any problem of shortage of cars?

Mr. PODPECHAN. Oh, at times. There is not very many mines on the Frisco anymore, and they have been able to take care of us very reasonably.

Mr. SAYLOR. How many days do you operate on an average?

Mr. PODPECHAN. An average is probably 4 days a week.

Mr. SAYLOR. How many men do you employ?

Mr. PODPECHAN. Sixty-five.

Mr. SAYLOR. Sixty-five men?

Mr. PODPECHAN. Yes.

Mr. SAYLOR. How does this compare with your maximum operation as far as number of men?

Mr. PODPECHAN. We have had as high as a hundred men. We have increased the capacity of our shovels, and we are maintaining about the same production with a few less men.

Mr. SAYLOR. Mr. Podpechan, do you know whether or not if our committee would go into the southern Illinois and Kentucky fields for a hearing your company would have somebody there to represent them?

Mr. PODPECHAN. They certainly would. This thing came up very quickly. I assure you they certainly would. They are very much interested. There is no question about that.

Mr. SAYLOR. I might say to you that this committee has had to operate in a hurry. We went for a long time without any money, and finally when the Congress decided to make some available to us, if we expected to get any field hearings in and to get any work done it was necessary to operate it in a hurry.

I want to say that the chairman of the committee moved expeditiously, and I congratulate him on having these field hearings because I think we have gotten a great deal of useful information.

I am delighted to know that if we move into the other fields where your company has its biggest operations they would have some representatives there to talk over the problems.

Mr. PODPECHAN. Yes; that is right.

Mr. SAYLOR. That is all.

Mr. EDMONDSON. Mr. Chenoweth.

Mr. CHENOWETH. How long have you operated at Claremore?

Mr. PODPECHAN. Since 1938.

Mr. CHENOWETH. You started because of the steel demand?

Mr. PODPECHAN. No, sir; it was a commercial mine to start with.

Mr. CHENOWETH. Except for this demand from the steel plants you would not be operating today then?

Mr. PODPECHAN. No; not over a few months a year.

Mr. CHENOWETH. How about the export business? Do you get any at all?

Mr. PODPECHAN. Occasionally. We got one little dab last year, and I think a little order at this time in this area.

Mr. CHENOWETH. Has there been any effort made to get some export business?

Mr. PODPECHAN. I think so.

Mr. CHENOWETH. The freight rate is what interferes with your bids?

Mr. PODPECHAN. I cannot answer that. I do not think the freight rates exactly because I think that coal is shipped to Port Arthur.

Mr. CHENOWETH. How many other mines operate near Claremore?

Mr. PODPECHAN. There is one mine installation.

Mr. CHENOWETH. Were there more mines a few years ago?

Mr. PODPECHAN. No, not in that area.

Mr. CHENOWETH. There have been new areas developed?

Mr. PODPECHAN. Yes.

Mr. CHENOWETH. This is since 1938?

Mr. PODPECHAN. This particular mine I think started in 1927.

Mr. CHENOWETH. I think that is all.

Mr. EDMONDSON. Mr. Soule.

Mr. SOULE. During our field trip to Johnstown, Pa., we went underground at the Nantiglow Mine of the Bethlehem Steel. Co. They were mining a coal seam approximately 36 inches thick.

As I recall, and Mr. Saylor can bear me out, we were informed they obtained a production rate of 35 tons a man with new coalmole machinery. The subcommittee might be interested in knowing why such productivity could not be obtained on a 36-inch seam in the Kansas area.

Mr. PODPECHAN. That would be natural conditions. I have a little experience with deep mining, but by golly they would have to have some mighty good roof conditions and everything else to get 35 tons a man. That is my opinion.

Mr. SOULE. The reason you could not do it would be due to the structural features of the coal seams?

Mr. PODPECHAN. The structural features.

Mr. SOULE. The roof and floors?

Mr. PODPECHAN. That is right.

Mr. PHELPS. I would like to challenge that figure of 35 tons per man on a 36-inch seam.

Mr. SOULE. That was the figure Bethlehem Steel gave us. Is that not correct, Mr. Saylor?

Mr. SAYLOR. Yes.

Mr. PHELPS. I cannot visualize that. I doubt it.

Mr. EDMONDSON. We have even had some claims, although not in testimony before the committee, of 50 tons per man per day, and we are going to follow up on that to see what authentication we can get for that.

Mr. PODPECHAN. We have two large deep mines in Illinois, but you have high coal there, and we produce a lot of coal in those two particular mines. I do not know what that ratio is but it is high. I cannot tell you.

Mr. SAYLOR. I might ask the witness several other questions, Mr. Chairman, with regard to the matter that has been touched on here.

In this strip operation, what do you do with your backfill? Is there any attempt to level it off?

Mr. PODPECHAN. No, sir.

Mr. SAYLOR. There is no attempt to reclaim or plant it?

Mr. PODPECHAN. Yes, we do replant it, plant trees and do some various things in that respect. But that is thin seamed coal, and you cannot spend too much money that way. I will tell you that for sure. It is just not economical.

Mr. SAYLOR. There are no laws of the State requiring leveling off?

Mr. PODPECHAN. No, sir.

Mr. SAYLOR. That is all.

Mr. EDMONDSON. Are there any further questions?

Thank you very much, Mr. Podpechan. We are very pleased you could be with us.

Mr. PODPECHAN. Thank you.

Mr. EDMONDSON. Our next most distant point would be Muskogee. The next witness is another old friend of mine, head of the United Mine Workers of America for district No. 21, and a real old timer who also had experience with the United Mine Workers in the State of Pennsylvania. And I understand he was even in politics for a while up there in Pennsylvania. I am pleased to call Mr. David Fowler.

STATEMENT OF DAVID FOWLER, PRESIDENT, DISTRICT NO. 21, UNITED MINE WORKERS OF AMERICA, MUSKOGEE, OKLA.

Mr. FOWLER. I am not a Democrat or Republican though.

Mr. EDMONDSON. We are very pleased to have you with us, Dave, and are very pleased also to get this article which gives some information concerning your views on the subject of coal mining in this area from the Muskogee Daily Phoenix of December 2, 1956.

If there is no objection, this article will be made a part of the committee files in connection with the hearings.

Mr. SAYLOR. I would suggest it be made a part of the statement.

Mr. EDMONDSON. If you would care to make it a part of the statement, we would be glad to have it.

Mr. FOWLER. That was not dictated to the paper because of this committee. I have no objection.

Mr. EDMONDSON. Thank you very much.

(The article follows:)

[Muskogee Sunday Phoenix and Times-Democrat, December 2, 1954]

THREE FACTORS MAY GIVE AREA COAL MINING BIG BOOST

(By Mike Hill, Phoenix News Editor)

"King Coal" may reign again over the domain of eastern Oklahoma and western Arkansas as it did during the early part of the century up until the late thirties.

Three factors will determine his return to the industrial throne in the area during the next 10 years.

They are:

1. The development of the Arkansas River for navigation which will enable the area mines to obtain a lower shipping rate so they can be put on a more even basis with eastern markets.

2. Developing of a process to combine low volatile coal and a high volatile type—both found in the area—for coking purposes for use in steel plants.

3. The expansion of markets in the North and East for coal mined in the area. Many of the eastern mines have already started shipping coal to foreign countries on ships purchased or leased by American Coal Shipping, Inc.—which was formed recently by the United Mine Workers of America, the Coal Operators Association and a group of coal-carrying railroads—and all indications point toward coal mined in this area being sent to northern and midwestern consumers.

These factors were pointed out recently by David Fowler, president of district 21, UMWA.

During the past 10 years most of the mines in the district have been closing due to a tremendous loss of market as the railroads switched from coal burning

to diesel operated locomotives and the homeowners went from coal to natural gas and fuel oil.

"Once upon a time every time a train quit running a coal mine closed down," Fowler stated, as he pointed out how much the loss of the railroad consumption meant to the industry.

"When they all started to use diesels it nearly curtailed the coal mining business in this area," he stated.

"Today Mary isn't going to carry in a dirty coal bucket to fire the furnace or fill the stove when she can just turn an electric switch or light a match to a burner," he said as he pointed out the decline of the use of coal for heating and cooking purposes in the home.

But as these vast markets began to disappear new markets for area coal have been developing, but many will not progress fast enough to open all the mines until about 1970, he added.

Oklahoma coal production was up 46,108 tons over last year at the end of the fiscal year on June 30, and this year's production is expected to show a sharper increase, Fowler said.

One of the biggest consumers of coal in this area is the public-utility companies which use coal to run powerful steam turbines to generate electricity, he stated.

Large industries which use a considerable amount of coal in the manufacture of commodities are beginning to locate in Oklahoma and States bordering the area coal mining field but many will not begin operation for 4 or 5 years.

These plants which operations begin will make mining worthwhile again and many of the mines will open as the demand grows.

But the days of the small mine operation is over, the district president pointed out. Mining in the future will be on two levels—the large shaft or slope mining with modern machinery or strip mining when the coal is at a shallow level.

Gone are the days of the small mines. The amount of royalties per ton of coal and the expense of setting up the miners' health and welfare fund and insurance which the mineowner pays makes small operations unprofitable.

The purpose of this health and welfare fund is not to extract a greater amount of money from employers but it is to provide immediate benefits for miners and their dependents in cases of emergencies. Many other industries have similar setups for employees, but the occupational hazards are not as great in some instances as the coal-mining industry.

Another feature of the plan is the miner is covered no matter if he works 1 year in Oklahoma and the next in Pennsylvania. "The best part of the health and welfare setup is that it is universal," Fowler said. "A man never loses his benefits although he may work for several companies which is something very few industrial plans offer its workers."

"Modern mining is met with modern ideas and the real medicine for a sick industry is a larger mine, mechanized to a minute for the purpose of increasing production per man. The remedy is to keep strong so that the men and company can make money and therefore only larger companies can cure the illnesses of the industry," Fowler stated.

Going along with the trend for larger mine operating is a recent development of a coal mine south of McAlester for which plans are just getting underway, Fowler said.

The proposed coal mine stems from an application made by the Armco Steel and Sheffield Corporations about the 1st of October to the Federal Government for permission to amortize costs of expansion of a steel mill at Houston, Tex., and building of a coal mine to McAlester to supply coal for the Houston works.

J. G. Puterbaugh, president of the McAlester Fuel Co., leased the lands to the Sheffield Co. for the coal mine.

Puterbaugh said recently that he is unaware of any new developments in the Government's stand on an accelerated charge-off of an investment. "As far as I have been able to ascertain there will be no action taken on Armco's or Sheffield's application or applications from numerous other steel companies until after the first of the year."

He pointed out that the international situation could have a great deal of bearing on these applications for certificates of necessity, which would permit a company to delay payments of a portion of its income-tax for several years with the taxes paid in full in later years.

Such certificates have been granted by the Government in the past, particularly during the Korean situation to primarily strengthen basic industries for national defense.

The McAlester man said he is certain that Sheffield would sink a coal mine in the McAlester area regardless of Government action. "If the request is not granted, it may delay starting a mine in McAlester for a few years, but it will come about—probably within 5 years."

The land was leased several years ago by Sheffield and is located approximately 3 miles south of the southern city limits of McAlester and around 3 miles to the east. The location of the shaft has not been decided yet, Puterbaugh said, but he pointed out that the mine would cost anywhere from $3 million to $5 million and would probably have a $250,000 payroll per month. Armco in its application to the Government, asked for $5 million for the McAlester mine.

Sheffield will use the McAlester coal, which is of a high volatile type, with a low-volatile coal from its Sallisaw plant for its Houston plant. It takes a combination of both low- and high-volatile types to make the best coke for fuel used in steel plants.

At the present time Sheffield is shipping around 800 tons of low-volatile coal daily from Sallisaw and getting the high-volatile type from Alabama mines. The McAlester mine would enable Sheffield to get both types from Oklahoma, Puterbaugh explained.

The Lone Star Steel Co., which owns the Carbon mine east of McAlester, ships about twenty-five to thirty thousand tons of coal a month to its Daingerfield, Tex., steel plant, using the high-volatile coal of the Carbon mine with the low-volatile type from its new Bokoshe mine. The Carbon mine was built by the McAlester Fuel Co. during World War II for the Government. It was later sold to Lone Star by the Government.

There are about 400 persons employed at the Carbon mine with a payroll of $125,000 per month. This company is still operating on the same employment basis as during the war, since the coal needed by steel mills is a year-around necessity and not a seasonal item. It is one of Pittsburg County's leading industries.

The opening of coal mines in McAlester for use in Texas steel mills will open a new market for Oklahoma products as both low- and high-volatile types for the production of hte finest metallurgical coke is found in the State, Puterbaugh pointed out.

"Many large steel plants have to get their coal from different places. Kaiser Steel Company of California uses eastern Oklahoma and western Arkansas low volatile with Utah high volatile for their Fontana, Calif., plant. United States Steel uses eastern Oklahoma and Utah coal. Colorado Fuel & Iron Co. has recently put in a low-volatile mine near Ozark, Ark.

"Sixty or seventy thousand tons of coal a month from Oklahoma are being shipped to Texas, Colorado, Utah, and California," he added.

These are only a few examples of what the future can hold for the area coal mining industry.

Recently the American Coal Shipping, Inc.—the steamship company formed by the UNV, coal operators and Pocahontus railroads—acquired stock control of one of the largest ocean shipping companies in the United States, the A. H. Bull Steamship Co.

The purchase of the line gives ACS 46 seagoing vessels to haul coal to foreign markets. And the firm plans to add more ships to its fleet in the near future.

It was President John L. Lewis, of the UMW of America who 5 years ago proposed using surplus Government ships to export American coal and it was he who was instrumental in forming the American Coal Shipping. It began operation last May and since that time has taken three major steps toward its avowed goal as a major hauler of export coal.

They were: 1. Purchase of 1 Liberty ship for $775,000. 2. Charter of 30 United States Government Liberties. 3. Acquisition of stock control of A. H. Bull Steamship Co.

American coal can be mined, shipped to the ports by rail, transported across the ocean and then put on rail cars and transported to cities in England, France, Germany, Belgium, Holland, and other European countries cheaper than they can be mined there, Fowler pointed out.

The main purposes of the formation of the shipping company was to gain new markets in order to keep more miners and railroad men employed. Also additional men are employed on the ships.

They also knew that Western Europe's dependence upon oil from the Middle East was dangerous and wasteful, particularly in view of the large coal reserves available in the United States.

The present situation in Egypt points up the dangers involved and may well cause many industries to convert from oil to coal for power purposes. England, France, and Denmark have already taken steps to conserve oil. Other countries may be forced to follow suit, with gasoline and oil rationing a distinct possibility.

Many of the eastern mining States such as Pennsylvania, Kentucky, Virginia, and West Virginia along with the seaboard State of Alabama are beginning to export large quantities of coal at the present time.

This means that in the near future the markets offered by St. Louis, Chicago, Detroit, Cleveland, and many other larger manufacturing cities will turn to Arkansas and Oklahoma as a source of their coal supply, Fowler said.

When the Arkansas River, is made navigable then this area will also be able to offer an even lower freight rate and can compete on level with the eastern operators on the coal market, he added.

And the Arkansas being made navigable will also enable the area to get in on the coal exports to foreign countries, Fowler stated. "Coal loaded on river barges in Oklahoma and Arkansas can be carried down the river to the Mississippi and then taken to New Orleans where it can be transferred to seagoing vessels for foreign markets," he added.

"This is all in the future but work is getting underway on the Arkansas River Basin program and the coal mining industry is just one of the many in the area which will be benefited by the development," Fowler concluded.

The need for water transportation and the development of the Arkansas River as a navigable stream was brought out thoroughly in a subcommittee hearing of the Committee on Appropriations in the House of Representatives of the 84th Congress held in March 1956.

Perhaps the need for navigation was pointed out best by Clarence F. Byrns, a former member of the Muskogee Phoenix staff and at the present time editor-in-chief of the Southwest American and Times Record at Fort Smith, Ark., and chairman of the Arkansas-Oklahoma Interstate Committee for Arkansas Basin Development.

At the hearing Byrns said:

"The Arkansas is the longest river in the Nation not developed for navigation. It is the only major tributary of the Mississippi which does not have water transportation. So long as the Arkansas is undeveloped the great waterway systems in the Mississippi Basin and elsewhere cannot possibly make their full potential contribution to the economy of the United States. So long as the Arkansas Basin remains the great desert of water transportation, these two States will be burdened with high freight rates which make effective competition with the remainder of the Nation impossible.

Arkansas and Oklahoma have lost population between 1940 and 1956 while the Nation has gained an amazing 26.8 percent. Arkansas population in 1940 was 1,854,482. The census estimate as of February 1, 1956, was 1,798,000. Oklahoma population in 1940 was 2,396,040. The census estimate as of February 1, 1956, was 2,114,000.

The Nation's population in 1940 was 131,669,275. The census estimate as of February 1, 1956, was 167 million.

Why have Arkansas and Oklahoma lagged behind the Nation in population?

The basic reason is our inability to develop industrial jobs fast enough to absorb the workers no longer needed on the farms. Mechanization on the farms has continued to grow, in spite of falling farm prices. Our population losses have been in the rural areas, not in the cities. People have left the farms and come to the town and cities looking for a job. There are not enough jobs to go around, so they go to other States in search of work.

And why do not Arkansas and Oklahoma have enough industry to hold these people? Because our lack of water transportation is a barrier to many types of industries which could and would use our natural resources and our manpower if we could offer freight rates competitive with the other great river basins and coastal areas in the Nation.

We have made industrial progress, but not enough. We have established new industries and expanded others with our own money. We have attracted industry from outside. But we are barred by the absence of water freight rates from competition for the industries which have grown fastest and largest in the past 15 years—notably steel, chemicals, and related enterprises.

Heavy industry goes where deep water is available for cheap transportation and abundant water can be had for the enormous and growing consumptive use of water in modern industry. Industry must look ahead to the water needs of tomorrow. The need 20 years from now is estimated at 2½ times the present

use. Industry is compelled to look with critical eye at freight rates. So long as we are landlocked we face an immovable roadblock when we seek heavy industry, except those which use little water and get their raw material and find their markets nearby.

Water transportation is growing rapidly in competition with other means of commodity movement. The waterways are getting the industry. Chester C. Thompson, president of the American Waterway Operators, Inc., said last week that 480 multi-million-dollar industries and powerplants selected sites on waterways in 1955, and sites for twoscore similar enterprises on waterways have been selected since January 1, 1956. "Landlocked basins such as ours cannot touch these enterprises," Byrns concluded.

Under the proposed multiple-purpose program which was adopted and will be completed about 1967 the navigation channel will connect Tulsa with the Mississippi with 465-mile, 9-foot year-around channel, maintained by a series of slack-water lakes created by 19 low-head locks and dams and 4 higher dams designed for production of power as well as navigation.

The benefits in the reduction in freight rates by cheap water transportation will not only bring new industries to the area but will also enable the shipment of products from the area to other sections of the country at a profitable margin.

And the coal industry will be one of the biggest beneficiaries of the new type of transportation. It will reopen mines and put more men back to work.

Mr. FOWLER. I would like to say I am not going to throw any cold water on this situation down here. I have hopes for this district that it is going to come back.

We have a problem that is much different from any other district in the Southwest. We have semianthracite.

When I speak now I speak of Arkansas and Oklahoma because what affects one State affects the other in this district; that is, working conditions have got to be similar, legislation has got to govern the both States in order to keep them on a competitive basis.

In one part of Arkansas we have the semianthracite that ships to domestic and smelter. We have the low volatile coal, smokeless coal, which is now known as metallurgical coal, but 10 years ago it was not known as that.

We have the bituminous coal here in this part of Oklahoma. Neither one of them is metallurgical coal unless they are mixed together. The metallurgical coal of eastern Oklahoma and western Arkansas, before it cokes, must be mixed with bituminous. The great problem is that those bituminous mines that are left out of the metallurgical department are depending entirely on domestic markets, and whether we like it or not that is a thing of the past. Mary is not going to carry coal into the house no more as long as she can touch a button or turn a valve. So we must meet modern ideas with modern thinking.

The relationship of the operators and miners at this time is very good. Of course, they are not all organized, and the relationship there is not so good.

We still suffer under the injunction laws whenever we attempt to organize some of the strip pits and they go to court. I am sorry to say that many of the operators that are organized support them.

As I see the domestic use of coal is a thing of the past. The question of cooperative mining is a thing of the past. You cannot compete with mechanized mining with primitive methods.

I think something ought to be done by the Government to see that when mines are opened up they are opened up properly and worked properly so that they will not destroy the amount of coal by mining where the least resistance is. There should be a method of mining

in order that they take all of the coal out. If that was true I bet they would be found in the anthracite field, too. Many millions of tons of coal have been lost in the anthracite field because of that.

I know a lot about that because I happened to be the father of Fowler mine cave bill—where they destroyed the homes of the workers, churches, schools, a loss of life.

Now we have a few of these mines that are not organized. They are not very beneficial to the comeback of this district.

I believe with proper support from the coal operators of this district in 2 years' time we will increase the number of men by 1,500 miners. They are going to need our coal. We ship to Utah, California, Colorado. The low volatile coal we ship to those States becomes metallurgical when mixed with the bituminous coal of the other States.

Now the coal we ship to Texas is a combination of bituminous and metallurgical coal from Arkansas and Oklahoma. So they both dovetail together.

As I say, the friendship has been very good in the late years with the operators and miners, because I believe the operators have been converted. The day of individualism is over.

In 1925 and 1926 when I first came into this district an honorable agreement that existed between the miners and operators was abrogated. The operators at that time felt they could go it alone. They found out that the advice of the mineworkers was right, that as individuals they could not exist.

What was the result?

After the abrogation of the contract they worked as high as 10 and 12 hours in this district for $2.70 a day. Miners were starving. The market did not increase. So lowering wages and cutthroating prices on each other was not the solution. But in 1931–32 the operators saw the wisdom of meeting again with the mineworkers and making a joint agreement.

In that agreement the miners of the Southwest, Kansas-Missouri, Arkansas-Oklahoma, do not receive the same wages now as the miners do in the Appalachian or Illinois fields. They were given a dollar a day differential in order to keep them in the market place, so that they could go into the market.

So, my friends on the committee, personally I believe, first, for the future the Arkansas River should be made navigable. The little mines should be a thing of the past.

I will say this: I think the Guffey law should be put back into effect. When we had the Guffey coal law we averaged 50 days more work per year in this country because we were protected in our market. We have to be protected in these low seams. We cannot ship our coal to the market and compete in the East outside of St. Louis where they have ordinances against smoke coal. That gives us a little market.

But we cannot compete with Kentucky, who have been shipping coal into Nebraska and other States for almost half what it should pay for coal in this State.

Under the Guffey coal law we received the protection of that law which put a price on our area. It protected us against Illinois or Kentucky, who have higher coal, better mining conditions to mine the high tonnage you talk of.

We now average almost three times as much production as we did in 1925. The average in this district used to be about 3½ tons. As mechanization has developed, we are producing 9 to 10 tons per man.

Mr. EDMONDSON. How does the total number of miners in your district compare with 1925, Dave?

Mr. FOWLER. In 1925–26 they averaged about 22,000 miners in Arkansas and Oklahoma. Today we average about 2,600 workers.

Mr. EDMONDSON. And how does your total production compare?

Mr. FOWLER. It is nomal now to what it was in those old days, but now we have so many different classes of mining. We have mines over in Arkansas where we bring it outside and mine it, what they call scow mining. They take a long wall, a coal about 20 inches in thickness, and they undermine it in the rock, and then they have what they call a hillbilly invention, invented by old coal diggers themselves over there. They have a steep steel plate 18 feet long, and then they have a shiv wheel on each end of the wall, and then pull the sheet in under the coal, and then take a jackhammer and break it off; then swing it around in little flat cars and take it outside and mine it on top of the tipple. There are only 1 or 2 mines like that now, but they mine it just the same.

Mr. EDMONDSON. Do you think there is any need for a Government research program in the field of mining methods?

Mr. FOWLER. By all means, yes.

Mr. EDMONDSON. I mean in the field of mining methods.

Mr. FOWLER. Yes, I do. I think, however, that one thing which prevents opening up more steel mills in Texas is the fact that they cannot get any recognition on the taxation, on income tax. I forget what they call it—accelerating tax.

Mr. EDMONDSON. Rapid writeoff.

Mr. FOWLER. I think if that was allowed there would be a mine opened up in McAlester and there would be several other mines that would be opened up. We have the coal in Arkansas and eastern Oklahoma. That is the only place they have it west of the Mississippi River. So whatever industry goes into the Middle West or Southwest it is going to benefit them that we have this coal.

Mr. EDMONDSON. Can you shed any light on this reported offer of the United Mine Workers to put up $500,000 for a research program to match that amount from industry?

Mr. FOWLER. No, I never heard of it. Hank and I were on the international executive board and we never heard of it.

I think there was some talk of that up in the anthracite field. I believe that is where that came from. That was on the tunnel proposition they were talking about, if I remember rightly.

So there is a future here with the help you can give the industry down here in bringing more markets. Our men are starving; it is a bread-and-butter situation with us.

I know right here in this little old town here I had to list 4 local unions in the last 2 weeks.

We have one mine working where we had 6 and 7 working. That is Sunshine Mine. They have had hard sledding and have hard sledding ahead of them. They depend I believe entirely on the domestic market.

The only thing I do not like about Ben Hur—and I will be glad to tell you—one of the Taylor brothers is interested in a nonunion strip mine. We do not like to see that coal going into that market. We will be honest about this thing. The fight is not all over.

I am not like Meany—never struck or never believed in strikes, never was on a picket line, don't believe in them. I do. If we gave that up we would not get anywhere in the Southwest.

We still know there as a fight left, the mineworkers, but we are getting along fine. If they live to the contract we have no complaints, and the solution is that we settle our cases immediately. That is the solution in any contract.

I think they do live up to the contract, although many of them us the Arkansas-Oklahoma Coal Operators Association as a little vehicle where they can jump on and jump off like a streetcar, you know. For convenience sake you know. When they want to duck out from in under they jump off the wagon and then jump back on.

I think the whole think is—and I am going to tell these operators right here what I believe—I think they all ought to belong to the association, and if they cannot organize themselves I would be glad to help them, because they cannot expect to get any services from you unless they all stand together.

Mr. EDMONDSON. You stand with them on the support for an expanded research program?

Mr. FOWLER. I believe in organization, you bet.

Mr. EDMONDSON. And on research, you are for that too, are you?

Mr. FOWLER. You bet.

Mr. EDMONDSON. I had no doubt you would be.

Do you have any questions, Mr. Saylor?

Mr. SAYLOR. Mr. Fowler, it is a pleasure to have you before the committee. I want to ask you a few questions here with regard to a statement which you made earlier. You stated that in your opinion the Arkansas and Oklahoma coalfields should be treated as a unit. Is that correct?

Mr. FOWLER. That is correct; yes.

Mr. SAYLOR. And the reason that you gave is that the conditions which you find in this field are the same despite the imaginary line of a State boundary that exists between them?

Mr. FOWLER. That is right.

I might clear that up, Mr. Congressman. We have an understanding in the joint board—when we seek legislation in either State the joint board meets and tries to agree on legislation in both States, equally the same, like compensation.

Mr. SAYLOR. Will you explain for the record what you mean by joint board and who comprises it?

Mr. FOWLER. The joint board consists of about 8 or 9 operators and the executive board of the United Mine Workers of America. When cases come before the board, grievances that are not settled at the mines, the board has the final settlement of these cases.

We also discuss mine safety, and we also discuss legislation and try to make an agreement so it will be noncontroversial when we go before the legislature. On this question I am sure—I am pretty sure I can speak for the operators. Earl Wells was the president—that we will

be discussing this same question before the joint board, and I believe you will have unanimous support of both sides.

Mr. SAYLOR. Can you tell the committee what your experience has been with regard to the recommendations of the joint board as far as reaction of the legislatures in Oklahoma and Arkansas are concerned?

Mr. FOWLER. It has been very good.

Mr. SAYLOR. In other words, when you are able to recommend a law to the respective legislatures with regard to the provisions of mining you have found that both of the legislatures have been receptive?

Mr. FOWLER. That is right. In Arkansas they did not have a compensation law up to 1941, and in this State they did not have death claims in their compensation. It required the amending of the constitution of this State in order to pass a death-benefit bill. The operators and the miners jointly agreed to changing the constitution and also agreed upon a bill of $13,500 for death benefits.

In Arkansas we failed to get that through last session because of the fact that when the compensation law was passed in Arkansas there were 3 bills before the legislature, and they put the 3 bills on the ballot in 1941, and the miners' bill was elected. But due to the fact that the compensation was elective by the people, it required two-thirds vote to even amend it.

So last November, with the endorsement of the operators and miners, in the last November election we increased the compensation from $8,000 to $12,500 in Arkansas. It is still $1,000 less than Oklahoma.

Mr. SAYLOR. In your dealings with the operators or mine bureaus, in both fields, do you find that the bureau of mines in Arkansas and Oklahoma enforce the laws in about the same way?

Mr. FOWLER. Up until the time that the Bureau of Mines was organized by the Federal Government we had very little protection in the mining departments of either State. In the State of Arkansas we had a one-man mine department. It was run halfshod.

Since we have our new setup here, Mr. Malloy is a credit to the State, and his mine inspectors as well. He has done a good job. But I want to say that the force behind that—we had very little support from the mining department—we had the Federal inspectors in here, and they have done a mighty fine job, and we reduced the casualties over one-half.

Mr. EDMONDSON. We are going to have to ask you to come back after recess for further questions.

The committee will stand in recess until 1:30.

(Whereupon, at 11:50 a. m., the subcommittee recessed until 1:30 p. m. the same day.)

AFTERNOON SESSION

Mr. EDMONDSON. The subcommittee will be in session. Mr. Saylor was questioning Mr. Fowler. Proceed Mr. Saylor.

Mr. SAYLOR. I believe the question I had asked you just before we closed was whether or not the States of Arkansas and Oklahoma have a division of mines which you feel truly represents the industry. I think your answer was that since the Federal mine safety bill was passed the standards of both States have risen so that you feel they now have two representative groups in both States.

STATEMENT OF DAVID FOWLER, PRESIDENT, DISTRICT NO. 21, UNITED MINE WORKERS OF AMERICA, MUSKOGEE, OKLA.—Resumed

Mr. FOWLER. Yes. They had one problem down there with a German machine. The miners put a nickname on it and called it the German Kraut cutter. There was a little objection to that, against a non-American-made machine. It has been proving a success. It cuts from the side out instead of undercutting.

Mr. SAYLOR. That is all.

Mr. EDMONDSON. Mr. Metcalf.

Mr. METCALF. No questions.

Mr. EDMONDSON. Mr. Chenoweth.

Mr. CHENOWETH. I do not think I will take time for questions. It has been a great pleasure to see you, Mr. Fowler. I see you are one of the oldtimers in the coal industry.

Mr. FOWLER. Yes.

Mr. CHENOWETH. One of the last ones still active.

Mr. FOWLER. I think I am the oldest on the staff now. I will be 79 in May and I started to work in the mines when I was 9 years and 9 months old.

Mr. CHENOWETH. You have seen many changes in the coal industry; have you not?

Mr. FOWLER. Very much. I worked for 4½ cents an hour, 10 to 12 hours a day, a big change from what it is today.

Mr. CHENOWETH. You mentioned you were optimistic over the future of the coal industry. What do you base such an opinion on?

Mr. FOWLER. On the question of industry coming into the Southwest, especially steel mills and industries that will be using coal. I hope that this industry that is coming into Muskogee—they broke ground yesterday. The Navy and Calorie Chemical. I hope they burn coal. If we get more industries that will burn coal, we will be better off.

Mr. CHENOWETH. The problem is for the operators who are now in the coal business to remain in business until we reach this time when the production will be increased?

Mr. FOWLER. Yes. I think, due to the fact that the operators and mineworkers and the railroads got together in shipping coal, and I live in the hopes that some day these new diesel engines which will be generating electricity by coal will replace the present-day diesel engines that they have.

Mr. CHENOWETH. The Pennsylvania Railroad I think is working on such an engine now.

Mr. FOWLER. Yes. I think it is going to be cheaper. It will pull more coal. And I think that these railroads should do that for the reason that coal is the big shipper over their roads. At the present time oil is a large shipper, but they are now starting to pipe oil.

Mr. CHENOWETH. You have not done that in this section have you?

Mr. FOWLER. No.

Mr. CHENOWETH. That is all. It has been a great pleasure to meet you.

Mr. EDMONDSON. Thank you very much.

Mr. FOWLER. Thank you for the privilege of appearing before you.

Mr. EDMONDSON. It was our privilege.

Mr. FOWLER. Rest assured we will do our part.

Mr. EDMONDSON. The next witness is Mr. J. G. Puterbaugh, of McAlester Fuel Co.

I have been asked to deliver warm personal greetings to you, Mr. Puterbaugh, from the majority whip of the House of Representatives, Congressman Albert.

Mr. PUTERBAUGH. Thank you very much.

Mr. EDMONDSON. Who said if we would just listen to what you had to say we would get some enlightenment on this work.

STATEMENT OF J. G. PUTERBAUGH, PRESIDENT, McALESTER FUEL CO., McALESTER, OKLA.

Mr. PUTERBAUGH. I am president of the McAlester Fuel Company of McAlester, Okla.

That company was organized in 1902 and our job was to sell coal for Oklahoma coal operators. The coal operators up to that time had been selling their coal through various brokers and jobbers at Dallas, Oklahoma City, Little Rock, Omaha, Kansas City, and the results were not satisfactory. They engaged our company to act as their marketing agent. We had branch offices at Dallas, Oklahoma City, Kansas City, Little Rock.

From 1902 up until 1920 we used to invoice and ship out as high as 300 carloads of coal a day. They went even into Mexico and all through Texas.

The householders in this southwestern and midwestern area burned lump coal in egg size, prepared sizes for domestic use; and the industrial plants, the powerplants, burned the screenings. We sold the screenings for about a dollar a ton f. o. b. the mines.

The railroads cooperated by making us a lower rate on the byproduct sizes so the industrial plants could afford to burn coal. They got a lower price grade and got a lower freight rate on it.

Speaking of railroads, some remark was made about them. I want to say that they have cooperated with the coal industry and done everything they could to help it in this southwestern country. Where we showed them there was some business that could be obtained, they said to us, "What rate do you have to have? Can't you do it on the present rate?"

We showed them on account of competition of other fuels a lower freight rate was necessary, and they have cooperated very nicely.

The power companies were our principal customers for steam coal and helped us to keep the mines running, because the screenings was a necessary byproduct that took about 35 or 40 percent of the tonnage, and that went to the industrial business all through Texas, Oklahoma, Arkansas, and Kansas.

At that time the wages of coal miners were about $3 per 8-hour day and the freight rates were lower than they are now. Mine-run coal could be sold for as low as a dollar and a half to a dollar seventy-five, and about 45 percent of the tonnage moved to the southwestern railroads. That same coal today is costing about $6.50 a ton at the mines. There has been that much of an increase since 1902 and 1910, along there. So that the price of coal has gone up about fourfold.

During that period and particularly after World War I, about 1920, oil became very cheap and fuel oil was very plentiful at as low as 50 cents a barrel. About 1920 the railroads, who had been our principal customers in the backlog in the summertime when the domestic business was light, went over to the use of fuel oil. Then in more recent years, as you know, the steam locomotive that burned fuel oil has been displaced by the diesel locomotive, and that cut off 45 percent of our market.

Natural gas since 1920 has gradually increased. It has been piped to every town and village in the Southwest. So that the people right here in Henryetta are burning natural gas instead of local coal.

The great difficulty with the coal business is the fact that we are in a territory out here that is abundantly supplied with gas and oil. The coal business has been gassed.

I think that one of the best things the committee could properly recommend would be to eventually pass the gas bill and let the gas industry seek its level. Gas is underpriced, and it is more or less corraled in this southwestern country, and it is too valuable a fuel, too precious a fuel, to be burned in powerplants and industrial plants. It is a great waste. Your grandchildren and our grandchildren will live to see the day that they wish that natural gas had not been ruthlessly wasted by burning it in powerplants, packinghouses, and general industrial plants.

As it is now, of course, the power companies are obligated to the public to produce power as cheaply as they can. If gas will produce electric power cheaper than coal will produce it, it is only natural and logical and businesslike for the power companies to burn gas as long as it is available at a lower price than coal.

But if gas should be allowed to seek its level as a competitive fuel, the price of gas, in open competition with coal, it should not—I think a great many of our eastern friends and northern neighbors are trying to make themselves believe that the natural-gas industry is a public utility and ought to be so restricted under the Federal Power Commission and limited to an earning of probably 5 or 6 percent of the investment. As long as that continues that is going to be very harmful to the coal industry throughout the entire country, not only in the Southwest but the East.

In our western country here the power companies burn gas in the summertime, and then in the fall and winter when the domestic demand for gas increases they do give us some coal business. That is, they give the strip mines the business.

So that I think the principal explanation for this slippage which Mr. Allai and Mr. Fowler and others have told you of has been the fact that of the abundance of natural gas, very cheap fuel oil, and the railroads going to diesel oil. That explains the tremendous slippage.

From a labor standpoint: When I came to Oklahoma in, I should say, 1916, along there, most of the coal was produced from underground mines, and that was true in Kansas and Missouri. Now most of the coal that is being produced in Kansas and Missouri and Oklahoma and Arkansas is from strip coal mines.

During that same 25 years the power-shovel people have developed draglines and shovels that lift up to 30 to 40 cubic yards at a time

and up to 60 or 65 feet. They can produce coal with one-fifth the amount of labor. They could produce the same tonnage at a lower cost than the underground mines can produce it under present conditions and on the present high-wage scale. The coal miners now get about $2.25 an hour, keeping up with the rising costs of living and the wages granted in the steel industry and others. Mr. Lewis' organization, aided by Mr. Fowler, Mr. Allai, and others, have not hesitated to move up the coal miners so that their economic position is at least maintained, and that has greatly increased the cost of coal while the cost of gas has remained stationary and the price of fuel oil has raised but a very little bit.

So I quite agree with Mr. Fowler that as long as gas is so cheap and abundant—and probably for domestic purposes—the domestic business is gone. People nowadays are really not burning what is the cheapest fuel, they are burning the fuel that they can use with the least labor. They do not like to carry out the ashes, nor do they like to carry in the coal.

Therefore, time moves on, and I think that we can recognize the fact that the domestic fuel future will continue to be natural gas and possibly electricity.

I understand that the Atomic Energy Commission is appropriating considerable amounts to help the large power companies of the East to put in private plants for the generation of electric power with atomic energy. It seems to me that the Government was justified in spending the billions it spent to develop atomic energy as a protective measure during the war and when they were afraid Hitler was going to do that, but after the war was over it seems to me that the Government should not appropriate large amounts, with such a high budget and as high as taxes are, to carry on to finality the possibilities of electric energy, because there is a grave possibility that in 20 years from now atomic energy will almost extinguish the use of coal for fuel puropses. That I think is the opinion of those that are best informed. I do not know how they come to date it—20 or 25 years—but that is a very common opinion at this time.

I think that research is a good thing. A good deal of it is being done by the bituminous coal operators through the bituminous research organization. The Bureau of Mines has been very helpful in some respects.

It seems to me—I do not claim to be an authority on the subject and I have pretty well gotten out of the coal business entirely in view of the conditions that exist out here—but it seems to me that the help that Congress gives might well be administered through the Bureau of Mines in cooperation with the bituminous research organization, which is well informed and has been studying along those lines. I think it would probably be a waste of energy to create a new organization of any kind to carry on research because private industry is going off the deep end with research. The chemical companies are working on it, spending millions on it.

My information is that most of the byproducts of coal can be obtained now more cheaply from natural gas and petroleum than they possibly can be obtained from coal, and until natural gas becomes more valuable and until oil and gas both become higher priced, coal is going

to have to wait and be the backlog for the longer future when hydrocarbons cannot be taken out of the ground with a pipe.

It is fabulous down along the gulf coast in Texas and Louisiana the large chemical plants that are going in. They have tremendous capital, they have many chemists, they have many engineers. They are making plastics and many things that could be made out of the byproducts of coal. But there is no hope that they could be made as cheaply out of coal as long as coal costs so much and as long as natural gas and oil is so cheap.

I gather that we are just going to have to use coal for such purposes as it is best suited for.

To show that research does pay, in 1941 my company shipped a carload of coal from about 15 different mines in Oklahoma to the Gemet Solvay Co. in Ensly, Ala., to make coking tests. It cost considerable money. They gave us all of the byproducts and percentages. They found out, as Mr. Fowler testified, that a combination of our high-volatile coal, such as produced at McAlester and Henryetta, and the low, volatile coal, which is produced in eastern Oklahoma, which is more like your Pocahontas coal in West Virginia, made a very excellent structure and a very excellent coke.

Without burdening the record too much, I might state that about 1941 some very enterprising gentlemen from Dallas were in Washington, and Mr. Jesse Jones told them the Government was going to put a billion dollars into the steel industry. Mr. Carpenter, the president of Texas Power & Light Co., said to him, "Why don't you put some of that in Texas? We have got a lot of iron ore in east Texas."

He said, "Go down and get your data and bring it up here and we will consider it."

Mr. Carpenter phoned me and said, "We want to know from you, Can Oklahoma furnish good coking coal?"

I had had this report from the Gemet Solvay Co. in my desk for 29 years without a customer for it, or any need for it. Fortunately, we had that information, and we put it into the prospectus. With a great deal of effort and 18 trips to Washington we convinced the Defense Plant Corporation that we had coking coal in Oklahoma and we had usable iron ore in east Texas, and that resulted in the establishment through Government aid of the Sheffield Steel plant at Houston, Tex., and the Lone Star Steel plant at Daingerfield, Tex. And they were committed to Oklahoma coal.

As a part of the arrangement, McAlester Fuel Co., was employed to develop two mines in Oklahoma for coking coal. Then one of the engineers of the Defense Plant Corporation went out to Fontana, Calif., with Mr. Kaiser, and he phoned and he wanted some Oklahoma low volatile coal to mix with the high volatile Utah coal. They found that 10 or 15 percent of Oklahoma low volatile coal mixed with the very high volatile coal from Utah made an excellent structure in their coke in California, and they began using it.

Then the Colorado Fuel & Iron Co., hearing that Kaiser was using it way out in California, thought they would try it. They found it satisfactory and leased up large tracts of land in Arkansas and put in a large stripping organization, and they have been using quite a tonnage, 18 or 20 carloads a day, of Arkansas coal, low volatile.

Then the United States Steel Co. out at Geneva, Utah, finding that these other people had confidence in Oklahoma coal, began trying it and buying it, and now nearly all the coal that is being produced in eastern Oklahoma and western Arkansas is going to the steel industry for the making of coke.

That is a very nice piece of business because it runs the same in spring and summer as it does in fall and winter. Our other business formerly was seasonal. But all of our lump business has evaporated, it has gone to gas; and therefore the people that get coal now have to take it as it comes from the mine, all sizes mixed together, mine run.

That means that the power companies that formerly burned coal would have to buy a higher priced grade of coal because we do not make the screens any longer, and therefore they are burning gas and will continue to burn gas undoubtedly as long as it is obtainable at a price that is lower than the price of coal.

So these questions of the lump-coal market going out and making no slack, reducing it to a mine-run basis, brings us now to where we are practically reduced, with some minor exceptions, to mine-run coking coal for the steel plants in Texas, Colorado, California, and Utah, which brings some promise to grow and continue as the business of these plants grows, and there are enlargements in the offing at Houston, and that will help some.

At the present time, though, the bulk of the coal these gentlemen have testified about today that is produced in Kansas and Missouri and Arkansas and Oklahoma is coming from strip coal mines which employ about a fourth as much labor, or less than a fourth, probably 20 percent, as would be employed if they were underground mining operations.

Mr. EDMONDSON. How does the capital investment requirement compare for strip mines as with other types?

Mr. PUTERBAUGH. I imagine it would be approximately the same.

Another thing: A man starts to strip mine with a small shovel or small dragline, and he cannot compete with the competitor that has a big one, a man who has 5- or 6- or 7-yard dragline cannot produce as cheaply as a man with a 30-yard drag line because the same amount of labor operates the big machine as operates the small machine. The very large machine cost in excess of a million dollars, besides the high cost of freight. And it takes about 20 carloads of freight to ship them to their destination, and then considerably more to establish them. Once established they produce coal very much cheaper in this country than the coal can be produced by underground-mine labor.

The underground operations in Illinois and the East where they have them and where they have thick coal, have greatly increased their tonnage per man by means of modern machinery, and research is going on of that kind constantly. I think the industry is doing a very good job of helping itself as much as it can.

Mr. EDMONDSON. Does your company participate in any research programs at this time?

Mr. PUTERBAUGH. No, sir.

Mr. EDMONDSON. Are you affiliated with the Bituminous Coal Research?

Mr. PUTERBAUGH. No, sir; I am not.

Mr. EDMONDSON. Where do you think the Government should concentrate its research program?

Mr. PUTERBAUGH. I think, if I were a member of this committee, I would listen very carefully to those that are active in the bituminous research organization, and particularly to the Bureau of Mines. The Bureau of Mines have a very excellent plant at Denver, Colo., and it has done a very good job in a number of ways. Naturally anyone that has a problem of setting out uses and byproducts would go to the Bureau of Mines and maybe their problems would have been solved someplace else by somebody else.

In general, Mr. Edmondson, I would like to see American industries solve its own problems. I do not think we ought to burden Congress. We are always going to have trouble in the coal business. It is founded on trouble, and it is a hard job. I think the people that are in the business are going to have to solve it.

Mr. Fowler said he would help the coal operators organize. Well, the coal miners can form a monopoly, and that is what they have formed, and Mr. Lewis is the very able leader of it. That is legal. But if the coal operators in this room would get together and organize and undertake to say what wages they would pay and what prices they would charge for coal, we would be violating the antitrust laws.

Furthermore, I do not think that is a possibility anyhow. They never have agreed on anything much, to their detriment.

Mr. EDMONDSON. You have certainly given us a comprehensive statement and a fine one, right in line with some of the fine letters you have written through the years which I have appreciated receiving. I hope you will keep on doing that too, sir.

Mr. PUTERBAUGH. Thank you.

Mr. EDMONDSON. Mr. Metcalf, do you have any questions?

Mr. METCALF. Just to say thank you for an outstanding contribution.

Mr. EDMONDSON. Mr. Saylor.

Mr. SAYLOR. As I understand it, McAlester Fuel Co. is a sales company?

Mr. PUTERBAUGH. It was, yes, sir.

Mr. SAYLOR. Is it still in existence?

Mr. PUTERBAUGH. Yes, it is in existence, but it is practically—its sales are very small now. It used to represent a large number of companies, but a large number of them have quit, gone out of business, and a large number of them have gone broke as the business died down. We are marketing a very small tonnage of coal now. There is one mine which we own and operate still.

Mr. SAYLOR. In other words, it was originally a sales company, but over the years it has changed from just strictly a sales company to also a producing company?

Mr. PUTERBAUGH. Yes, sir; a very small producer. We had several mines some years ago, but as the business became unprofitable we closed them or sold them and got out of the business.

Mr. SAYLOR. I was interested in your statement that practically all of the byproducts that you can get from coal you can now get from gas and oil, and that for that reason the future of coal looked dim in your opinion until the supply of oil and gas either became markedly decreased or the price increased.

Now what would you say to the proposition, if the committee made it available to the Bureau of Mines, for research to determine cheaper and better ways of getting byproducts from coal?

Mr. PUTERBAUGH. First, let me say, Mr. Saylor, that I think the byproduct business would require a very small amount of coal. You could make a billion nylon stockings—we hear about nylon stockings being made out of coal, and water, and salt. I think one carload of coal would make a billion nylon stockings. We have got to have volume relief.

I think our salvation when we find markets for coal is going to be largely for powerplants and packinghouses, large industries that ought to furn this low-grade fuel, and gas ought to be conserved for domestic and hospital use and chemical purposes.

Mr. SAYLOR. We have had some people who have apeared before our committee and said in their opinion the most wasteful way to use coal was to burn it.

Mr. PUTERBAUGH. They are smarter than I am.

Mr. SAYLOR. That is what we are out here trying to find out.

Mr. PUTERBAUGH. I think it would take a million years to use it all for chemical purposes.

Mr. SAYLOR. You know, Mr. Puterbaugh, if you begin to fill a bucket drop by drop, when you end up with enough drops you get a bucket full.

Mr. PUTERBAUGH. Yes.

Mr. SAYLOR. As far as I am concerned, I am out to get a full bucket, and I would like to turn on the spigot and have it fill up real fast.

Mr. PUTERBAUGH. Yes, sir.

Mr. SAYLOR. But if I could find enough drops around through research, I am perfectly willing to take that method of relief.

Mr. PUTERBAUGH. Yes, sir.

Mr. SAYLOR. For example, I would like to shut off the dumping of residual oil on our eastern seaboard. It raised havoc in my district, because in my district we produce most of our coal for the electric markets in the East, the power companies in the East. That market has practically been taken away from us.

Mr. PUTERBAUGH. Yes.

Mr. SAYLOR. It has been taken away by this dumping process that has been taking place on the east coast.

There was one angle I thought we might ask your opinion on because of your long experience in this field. After all, you know that in the past two wars, World War I and World War II, coal has been called upon to produce the power to turn the wheels of industry to make it possible to win both wars.

Mr. PUTERBAUGH. Yes, sir.

Mr. SAYLOR. Being a part of our national defense, it is a matter that I do not think Congress can just turn its back on and say, "We hope that some day in the future things will turn out all right."

From a defense angle, do you not think we owe it to the coal industry, as a vital part of our American system, to see to it that it is kept in healthy condition so if world war III comes we will be able to begin to produce at once, because we will not have the time lag that we have had in the other two wars?

Mr. PUTERBAUGH. Of course, that would be desirable. But I doubt if Congress has that power. As long as these natural fuels like gas

and oil come in from field to field and are abundant and at cheap prices, I do not know. There is only one way you could limit the use of gas competitive to coal, and that is for the price of gas to increase. You cannot put a tariff on oil for interstate movement, or anything of that kind.

Mr. METCALF. Will the gentleman yield to me?

Mr. SAYLOR. Yes.

Mr. METCALF. Mr. Puterbaugh, I ended up the war in the coal region of Germany. I had an infantry platoon, and we took the Agfa film factory in that coal region. When we got in there they were making aviation gasoline, chemicals, films, and every other item out of low-grade coal just as we have under all of Montana and most of Wyoming and a good deal of North and South Dakota. They developed that industry by necessity, and it probably was high cost for fuel and high cost for chemicals. But by research they developed that. Do you not think if we carried on a research program like that we could find a whole new market for coal?

Mr. PUTERBAUGH. No, sir; I do not think so. I wish we had the possibilities for research. We know enough already.

Mr. METCALF. Mr. Edmondson read you some figures—$361 million that the chemical industry has spent for research. And they have opened up a new field for all sorts of new chemicals.

The other day, in connection with another bill that was pending before the Interior Committee, members of the committee will recall it, the bill for expanded acreage for Monsanto Chemical, and so forth—one of the great chemical corporations in this country said that 50 percent of the things they sell today were not even known at the end of World War II; 50 percent of the products of a great chemical industry were not even known at the end of World War II.

Now it seems to me, coming from an area where no coal is produced—all the coal comes from eastern Montana, which is out of my district—that there is an important natural resource that it is my responsibility to preserve for the maximum utilization of the people of the Nation; and because coal has become a sick industry, it is necessary for the Government to step in and finance some of this research so that we are expending a proportionate amount of money for research for the use of coal products as the $361 million in the chemical industry and the $146 million in the petroleum industry. Then when we get this industry back on its feet you people can begin to take your share and bear your share of the burden of research.

Mr. PUTERBAUGH. I think the trouble is the volume. You take one of those chemical companies, and a year's output could be put in this room.

I was talking with the president of a chemical research company some times ago, talking about oil at $3 a barrel, coal at $5 a ton. He said, "I do not want anything you have to talk about a barrel of. I want something you sell by the ounce."

He wants to get a dollar an ounce for his chemicals.

The quantity is such a small item, even if we could take over all the chemical business we probably would not operate but one big coal property in this country. Our business is powerplants, making electric power for all of the people, and packinghouses and steel mills, coking plants. That is the only relief that I see, gentlemen, until all the gas is gone.

Mr. SAYLOR. Let me ask you just one more question. We have been told that the demand for electricity will double in the next 10 years.

Mr. PUTERBAUGH. Yes, sir.

Mr. SAYLOR. If it does, what portion of that market do you think will be taken up by coal?

Mr. PUTERBAUGH. In the eastern part of the country I expect nearly all of it. In the western part of the country, between the Rocky Mountains and the Mississippi River, if gas continues cheap and coal keeps moving up in price and cost and wages as it has been, the situation may not be changed very much. The coal wages are automatically fixed in the East according to the conditions in the East, according to the need of the United States Steel Corp. for coking coal. It is the captive mines of the United States Steel Corp. that virtually fixes the wages for the entire country, and they are oblivious to the fact whether we have gas competition or oil competition or anything else out here. We have no more to say about our wages out here than we have about when the ships will move through the Suez Canal. We just take what we get out of Pittsburgh.

Mr. SAYLOR. Thank you.

Mr. EDMONDSON. Judge Chenoweth.

Mr. CHENOWETH. I get the impression, Mr. Puterbaugh, except for the demand from the steel industry you would have very little coal production in Oklahoma. Is that correct?

Mr. PUTERBAUGH. Very little indeed.

Mr. CHENOWETH. Is production on the increase?

Mr. PUTERBAUGH. We are very pleased with the establishment of steel plants in Texas and the recognition of the value of Oklahoma high and low volatile coal by the Colorado Fuel & Iron Co. in Pueblo, Colo., the United States Steel Co. at Geneva, Utah, and Kaiser at Fontana, Calif. They seem to have come to Oklahoma and Arkansas for coal, and as their plants are enlarged and grow—and we believe they will—we believe that they will call on us for more and more coal here in Oklahoma and Arkansas.

Mr. CHENOWETH. When did the Colorado Fuel & Iron Co. first come into this market for coal?

Mr. PUTERBAUGH. About 5 years ago.

Mr. CHENOWETH. Just recently?

Mr. PUTERBAUGH. Yes, sir, after we had laboriously established the fact down in Texas that we had good metallurgical coke up here.

Mr. CHENOWETH. Is there something peculiar about the qualities of this coal that makes it particularly adaptable to the steel industry?

Mr. PUTERBAUGH. Nothing except the fact it is low in ash, low in sulphur, a good fusing property. Either our low volatile or McAlester high volatile coal make coke all right, but they do not make as good a structure as a mixture of the two, and that is a very common practice nowadays, even East, to blend the coals to get the proper structure and proper context. They need this particular coal for that blend.

Mr. CHENOWETH. For blending purposes.

Mr. PUTERBAUGH. It so happens the coals out in your country in Colorado and Utah are high volatile coals. We have here low volatile and coking qualities, fusable qualities.

Mr. CHENOWETH. We have a great deal of coking coal in Colorado. The Colorado Fuel & Iron Co. own their own mines.

Mr. PUTERBAUGH. Yes, that is true, at Trinidad. I have been there many times.

Mr. CHENOWETH. That is where I live. I have seen the number of coal mines decline very rapidly over the years.

Mr. PUTERBAUGH. I sold Trinidad coal when I was 15 years old.

Mr. CHENOWETH. I can see you have spent a lifetime in the coal industry. You have been a very good witness and have given the committee information we have not obtained anywhere else. I am very much interested in your observations.

Mr. PUTERBAUGH. I think the elements are working in the coal industry through the National Coal Association and the Bituminous Research, Inc., and particularly the Bureau of Mines, and I think that most of these things that the laymen talk about, byproducts and finding and discovering new uses and all, are well known to those gentlemen that have been devoting their lives to this business—the Batelle Institute, the Carnegie Institute, the large companies that have headquarters there in Pittsburgh. They have got these byproducts listed out as long as this table, and it is only a question of comparative costs. If they want aspirin or want analine dyes, or something else, they are going to get those things from the place they can get them the cheapest. If they can get them cheaper out of natural gas and out of oil, they are going to get them there.

Of course, the time will come in the long future when we will mine this McAlester coal at the mines and put it into carbonizing plants and fill these natural-gas pipelines with natural gas, and we will be shipping McAlester coal in pipelines to New York City to get the gas, because we are wastefully using our natural gas, and in 25 years from now it may be a scarce article the way it is going.

Mr. CHENOWETH. You think in 25 years we are going to be using coal for that purpose?

Mr. PUTERBAUGH. I would not be surprised.

Mr. CHENOWETH. That will bring back the coal industry.

Mr. PUTERBAUGH. That would bring back a lot of it; yes, sir.

Mr. CHENOWETH. I think that is all, Mr. Chairman.

Mr. EDMONDSON. Thank you very much.

Our next witness is Senator Gene Stipe.

We are very pleased to have one of the distinguished younger leaders of the State senate here today, Mr. Gene Stipe from McAlester. We are glad to have you with us in the hearings all through the day, Senator. We will be very pleased to hear your remarks at this time.

STATEMENT OF GENE STIPE, MEMBER OF OKLAHOMA STATE SENATE, McALESTER, OKLA.

Mr. STIPE. Thank you, Mr. Chairman. It is certainly nice to have this committee in Oklahoma and certainly good to have you in this coal-producing area.

I will not attempt to appear here as an expert on any particular subject. I would discuss with you briefly some of the problems that are peculiar to Oklahoma that I have had an opportunity to observe as a member of the legislature. Having served in that body approximately 8 years, I have had occasion to review the history of the coal mining industry in the State.

Starting from the first mine near McAlester, approximately shortly after 1880, the coal industry boomed in Pittsburg County and in that immediate area, and then on into Henryetta and various other parts of the State.

As was pointed out to you by Dr. Klemme, at one time it was the second most important industry in the State.

At the time of the constitutional convention in 1906 that fact was borne out by the fact that a goodly number of the delegates to the constitutional convention of the State were people who were interested in the mining industry. The industry continued to grow and prosper after Oklahoma was a State, as you have been told by these other witnesses who had an opportunity to observe that growth and that prosperity firsthand.

We of McAlester, in the McAlester area, have studied that growth and development to the point where it reached its peak, and then we have seen the decline where whole towns and cities have become ghost areas and are now abandoned. A good many cities and towns that were once very important towns are now no longer in existence because of the almost death of the coal industry.

We in Oklahoma are very interested in anything that can be done to bring back that industry and to make it healthy and strong in order that it again might be a very important part of the economy of our State.

As pointed out to you by Mr. Fowler and Mr. Puterbaugh, we are optimistic. We think the day is coming. We know that the coal is here. We know that it is going to be developed.

We in McAlester are particularly interested, and I would call to your attention the fact that we have present here a number of people from McAlester who are very familiar with the coal industry and who can furnish you facts and information and recommendations which I am sure will be of great value to you.

You have heard from Mr. Puterbaugh, who has been a pioneer in the coal industry and who has been in it for many, many years and has been a very successful coal operator.

You have heard from representatives of the miners, the men who dig the coal.

You have present here today the superintendent of the largest coal mine in operation in Oklahoma today, which is near McAlester, in the person of Mr. Cameron, Lone Star Steel Co., and I hope you hear from him.

You also have here a very competent mining engineer who represents the Sheffield Steel Co., who have bought considerable coal in the McAlester area and who have had on file with the State mining department for some several years a proposed new mine, which would be a very highly mechanized mine, as I understand it, using all of the modern machineries and techniques which have been developed over the years and which we have been hoping to see the opening and development of for the last 5 or 6 years since the time that those plans were filed.

Mr. EDMONDSON. That is Mr. Brown you are speaking of?

Mr. STIPE. Mr. Brown. It is my understanding that the Sheffield people or Armco people, who is the parent company, had plans of opening that mine in the very near future if they were able to obtain fast amortization or fast tax writeoff.

By way of explanation of our concern, I would point out to you that the McAlester and the Henryetta area, all of the coalfield areas of the State of Oklahoma, are in a depressed economy at this time. We have the worst unemployment conditions that we have had since prior to World War I. We have more people unemployed in McAlester today and I am reasonably sure that that picture is true in the Henryetta area. Perhaps it is not as bad.

We have a tremendous work force of experienced and capable miners who would be able to return to the coal industry and who are only waiting for the opportunity.

Seeing these people unemployed and cast upon the relief rolls or upon the mercy of charity causes great concern. When we review the fact that Oklahoma is a young State and that we are just now this year celebrating our 50th anniversary, you can well understand that, though we are a proud young State and though we have come a long way and made great strides, we are very much concerned over this segment of our people who are caught in this depressed situation.

I would recommend to you that anything the Federal Government can do to encourage the development of this industry, of this natural resource with which we are so abundantly endowed in this area, would be very much appreciated and is very muchly needed.

By way of answering a question which was asked about our State Mining Department: I have had occasion to be familiar with that because in 1949, with the cooperation and help of the coal operators and the mine workers' union, the mining laws of this State were completely recodified. By the way, the Bureau of Mines worked with and cooperated with us one hundred percent. We are grateful for the fine attitude which they have shown.

But those laws deal primarily with safety, and our only mining department we have in this State is the office of the State mine inspector, whose concern is only with safety and with the enforcement of the safety code, primarily. There are a few other provisions relative to mining, such as the posting of payroll bonds and a few statutes of that kind, but the function of the State mine inspector is to enforce safety practices. That is about all that we have in the way of a mining department.

We have the new Department of Industry and Commerce, which you heard about from Dr. Klemme, the very able head of, this morning, who have gone into the field of trying to encourage the development of natural resources of Oklahoma and to attract new industries to this area by pointing out to them the advantages that we offer.

Now the small sum that the State of Oklahoma will be able to devote to research in the coal industry in the very near future is not enough to do the job that needs to be done. The $50,000 which Dr. Klemme mentioned was included in the budget for coal research may or may not be available to his department. We hope that it will be. But, as you well know, $50,000 would be a very small drop in the bucket, Congressman. As you pointed out, it will help some. But I would urge you to do what you can within your power to direct the attention of Congress to this depressed industry and to this depressed area or depressed segment of our economy.

It is my observation that the industry itself is not strong enough to carry on the research and to bring about the development that is needed.

That might be done in the way of giving tax advantages or fast tax writeoffs, because certainly, as we all observe, the capital that is required for coal development at this time is tremendous.

I would urge you to take a very positive approach to this thing and again remind you that it is a job that the State government of Oklahoma will not be able to do by itself. I am sure that you will find our State government will cooperate with whatever your program is one hundred percent.

I want to thank you for the opportunity to appear.

I want to say, Mr. Chairman, that we are very proud of you as the chairman of this committee and as a member of our delegation in Congress from Oklahoma, and we appreciate the fine cooperation which has always existed between the Oklahoma Legislature and the Oklahoma congressional delegation.

Mr. EDMONDSON. Thank you, Gene, very much. It is a mighty fine statement, and I appreciate it.

We had a report during the noon hour that Mr. Malloy, State mine inspector, is ill and will not be able to be here. Do you know whether he has any representative that is here from the State inspector's office?

Mr. STIPE. No, sir.

(Discussion off the record.)

Mr. EDMONDSON. I am sorry about Mr. Malloy's illness, and I hope he recovers. We will ask him to give us a statement by mail in the event he is able to do so to fill out our hearings from his standpoint.

Mr. SAYLOR. I was going to ask that Mr. John Malloy, State mine inspector of Oklahoma, who I understand is the head of the bureau of mines of this State, be given the opportunity and request that he favor us with a statement showing the position of the Oklahoma State Bureau of Mines.

Mr. EDMONDSON. The State mine inspector's statement will be accepted for the record if there is no objection.

(The statement follows:)

STATE OF OKLAHOMA, DEPARTMENT OF MINES,
Oklahoma City, Okla., March 18, 1957.

HON. ED EDMONDSON,
Chairman, Coal Research Subcommittee of the House Committee on Interior and Insular Affairs, House of Representatives, Washington, D. C.

DEAR SIR: Having been prevented, due to illness, from attending the hearing held by you in Henryetta, Okla., March 9, 1957, I desire to file this short statement for your consideration.

At the present time, prospects seem very encouraging for the Sheffield Steel Corp. to open a new mine near McAlester where they own a large reserve of coal. Because of the large number of unemployed miners in our State, I suggest that the opening of this mine be accelerated in every way possible. Since our Federal Government is expending vast sums of money in helping people abroad, it appears logical that the Government could help in this situation by granting to the Sheffield Steel Corp. the rapid tax amortization that has been granted to others heretofore, in order to help relieve the unemployment among the mines of our State.

Secondly, I would like to suggest that your committee assist the appropriations committee to obtain a maximum appropriation for the research officials of the United States Bureau of Mines for increased research for new uses of coal.

Also, why cannot some sort of experiment station—such as the Petroleum Experiment Station at Bartlesville, Okla., which receives part of its funds from the State—be established in an effort to develop, and create uses for, the billions

of tons of coal resources of our State? The result of such an experiment station would be of immeasurable value in attracting new industries to Oklahoma.

Respectfully submitted,

JOHN M. MALLOY,
Chief Mine Inspector.

Mr. EDMONDSON. Mr. Metcalf, do you have any questions at this point?

Mr. METCALF. I have no questions of Senator Stipe. I want to compliment him on an outstandingly informative and helpful statement.

I want to state, coming from another area where there are large coal resources, eastern Montana also has a distressed industry and ghost towns and depressed areas and unemployment, and all the things that come from the breakdown of a complete industry that dominates the area. I can sympathize with the position in which you find yourself here, and I am convinced that the Federal Government has a responsibility in here to find some solution for this problem of maximum use of its natural resources, as well as protecting its human resources.

I can certainly see how there is that fine relationship between the Oklahoma Legislature and the members of your distinguished delegation in Congress if you are a representative of the State senate.

Thank you very much for a helpful statement.

Mr. STIPE. Thank you.

Mr. EDMONDSON. Mr. Saylor.

Mr. SAYLOR. Mr. Chairman, I, too, would like to congratulate the Senator and tell him that I appreciate the fact that I find here a fellow legislator that is cognizant of a situation that exists anywhere that coal miners live; because in every coal-mining community throughout the length and breadth of this land we have found the same situation of unemployment and ghost towns. I am glad to know that the members of the legislature here in this great State are cognizant of it.

I congratulate the members in having taken the forward step that you have as indicated this morning by Dr. Klemme.

I would like to say to you, Senator, that I do not believe it is the full responsibility of the State of Oklahoma or any 1 State, because there are 27 States in this Union of ours that have coal or produce coal, and I feel it is the responsibility of the Federal Government together with the States wherein you find coal resources to cooperate.

One of the things that I am going to ask you in a way of a question I think you have already answered in a sense, and that is whether or not you feel that the State of Oklahoma and its legislature would cooperate with the Federal Government and the United States Bureau of Mines in seeing that whatever is done in the way of research program for the benefit of this great industry is done without duplication.

The reason I ask that is that, as you say, $50,000 which might be appropriated by the legislature of your State will not be big enough to do the job, the whole job. But certainly if there were some segment of that research that $50,000 would do, you would not like to see it being wasted on what other States had done. I just wondered whether you thought the legislature of your State would cooperate with the Federal Government and the Bureau of Mines in organizing an overall research program.

Mr. STIPE. Congressman, I would point this out: That we have always welcomed the opportunity to cooperate.

Now the Bureau of Mines has a very fine research station at Bartlesville, and the State has established a similar station there. That activity is concerned a good deal with petroleum.

In the city of McAlester, where Mr. Bradford headquarters, there is a mine rescue station there which is again concerned with the safety of the men who work in the mines, in cooperating to prevent mine disasters and injuries and so forth. But I know that the mine inspector's office and the Bureau of Mines have always had a very close and a very wholesome relationship that has resulted in the best interest of everybody concerned being protected.

I can assure you that the State will cooperate in any kind of research program which the Federal Government authorizes.

Mr. EDMONDSON. Judge Chenoweth.

Mr. CHENOWETH. I also want to commend you on a very fine and constructive statement, which I think reveals what is an unusual grasp of State affairs here in Oklahoma. We can see that you have had long experience in these matters about which you speak.

Off the record.

(Discussion off the record.)

Mr. EDMONDSON. Thank you very much, Senator. We certainly appreciated your coming and appreciate the interest of the legislature in this problem, too.

Mr. STIPE. Thank you.

Mr. EDMONDSON. Mr. Campbell Cameron.

Mr. Cameron, we are very pleased to have you here with us today. Mr. Cameron speaks for the Lone Star Steel Co., located at McAlester. I have instructions from our whip to deliver greetings to you, sir, as well as to Senator Stipe.

Mr. CAMERON. Thank you.

Mr. EDMONDSON. He is very glad you are able to be with us, and I am very glad you are, too.

STATEMENT OF CAMPBELL R. CAMERON, GENERAL SUPERINTENDENT, LONE STAR STEEL CO., McALESTER, OKLA., ALSO REPRESENTING THE ARKANSAS-OKLAHOMA COAL OPERATORS ASSOCIATION

Mr. CAMERON. I am representing the Arkansas-Oklahoma Coal Operators Association, too.

As you have probably learned by now, the coal business in Oklahoma is pretty sick. However, I want to hasten to add I do not think in my time I have seen the prospects for the future any brighter, especially in regard to metallurgical coal.

The coal fields of Arkansas and Oklahoma extend from Coalgate, Okla., northeast some 250 or 300 miles, with the width of approximately 50 miles. A large percentage of that coal is excellent metallurgical coal, some of the best in the United States.

As Mr. Puterbaugh told you, we have both high and medium volatile coal, the blend of which makes an excellent coal.

At the present time, as he also told you, there are five steel companies vitally interested in Oklahoma and Arkansas coal. So I do

not think we have as much to worry about in the future of metallurgical coal, but certainly the coal which is not a coking coal is going to require some study.

I think our main problem here in Arkansas and Oklahoma, as well as Kansas and Missouri, is the study of utilization of the coal. Personally I think that working out some scheme of carbonization of coal is about the best way we could get at it.

It is true that there is an abundant supply of gas and oil, but I might add there are five economic seams in Oklahoma, all of which contain some metallurgical coal. But all of these seams, or the majority of these seams, are deeply pitching seams, exceptionally bad roof conditions, and extremely gassy, which makes for very high production costs. It is pretty hard for us when you get away from strip operations to compete for industrial coal. Almost out of the question.

Again I say that via research some markets could possibly be worked up to barely screen the high costs of production.

At the present time we are operating 2 mines in Oklahoma, 1 on high volatile coal at McAlester, and 1 near McCurtain, Okla., on medium volatile coal. Neither of our mines are operating at full potential because our tonnage goes entirely by the requirements of the coke ovens at Dangerfield.

Let me say in Oklahoma and Arkansas both we have an excellent and ample supply of labor. We enjoy the best relations with Mr. Fowler and the United Mine Workers of America, the Bureau of mines people and also the State people. We have very little trouble among ourselves. We work together on legislation and safety measures.

The only thing I see away from metallurgical coal to work on is to try to figure out utilization of the noncoking coals in Oklahoma. We have a peculiar situation with the coal here in Henryetta. It is an excellent coking coal but the sulfur is too high. So it almost puts them out of the picture. Our coals in southeastern Oklahoma and Arkansas run about five- to eight-tenths percent of sulfur, which is very, very low.

Mr. EDMONDSON. Do you know what the percentage on sulfur is in this area?

Mr. CAMERON. They are going to call me on this, but I think theirs is about 2.40. Some of it is lower and some higher, but I believe it will average pretty close to that. Each additional percentage of sulfur in your blast furnace makes a tremendous increase in costs.

I would say that we probably have some room for working out some market for noncoking coal. That would be the first thing.

I think probably some additional work can be done on mine safety work. We have worked pretty hard at it, and I am very happy to say that we have been getting clear Federal reports for the last 2 or 3 years, and that is something unusual down in this country.

Mr. SAYLOR. I might interrupt and say it is unusual in most any part of the country. I congratulate you.

Mr. EDMONDSON. Would you tell us a little bit about the mine you operate in McAlester, the type of seam you are working, the depth you are working?

Mr. CAMERON. The McAlester seam of coal will average about 3 feet in thickness. The pitch at outcrop started at 1930 and worked down into a base. It has diminished about 6 degrees.

We are partially mechanized. We go to the extent of chain conveyors up to our faces, but it is hand loading on the conveyor.

Mr. EDMONDSON. Hand loaded on the conveyor?

Mr. CAMERON. Yes.

Mr. EDMONDSON. How many men will you have working at a typical face?

Mr. CAMERON. In narrow places we work 2, and in wide rooms, which are 26 feet, we work 3.

We are working about 240 men there now. They are producing about a thousand tons of coal a day, which, as I say, is set by the requirements of the plant.

Mr. EDMONDSON. How many days a year will your men work?

Mr. CAMERON. It will run better than 240. We work 5 days a week.

At the McCurtain mine at the present time we are employing about 150 men. It is a very small mine. We just took it over a year ago last Tuesday, and there was a lot of work to do there, but we are maintaining a small tonnage of about 650 tons a day.

Mr. EDMONDSON. Are you practicing roof bolting in that line?

Mr. CAMERON. We made an attempt to do that in our McCurtain mine, but it was not successful. We had a very sorry experience. We picked out a section of entry about 300 feet long and put the roof bolts in standard timbering and put the standard timbers and the entire support of the roof on the roof bolts. As far as I know that thing is still standing, but we have moved back into the working section of the mine and in the first 2 months we had about 3 failures, and each one came a little closer to killing some men. So we gave it up.

We finally went to the use of aluminum beams at the faces and were just getting started when we had to shut the mine down on account of the fire.

Mr. EDMONDSON. Do you think there is room for an expanded Federal research program on safety?

Mr. CAMERON. I think there is room to bring it up to date. We are still working under some things in the code that I think are just out of date—not very many of them, but they should be corrected probably. As a whole it is an excellent program. If everybody followed it—well, the results are perfectly evident since it was put into effect in 1910.

I was interested in your statement this morning about this 35 tons per man shift in a 3-foot vein. We just have to work like the very devil to average 3½ to 4. That is probably a little above the average for the State.

There is one location where there is a possibility of our putting in some mechanical loaders. I believe, in my opinion, about the best we can do there would be between 8 and 10 tons per man shift.

Insofar as continuous miners in this field here are concerned, I do not think we could ever operate them. I do not think we could keep our faces clear of gas.

So we have a problem. We are anxious to go with this modern mechanized mines as far as we possibly can, but there is definitely a limit on the mining of coal in Oklahoma, I would say.

Mr. CHENOWETH. On what?

Mr. CAMERON. On the equipment you can use in the mine.

Mr. CHENOWETH. Because of the gas?

Mr. CAMERON. Partly, and also on account of roof conditions.

Mr. EDMONDSON. Does that hold true in Arkansas, too?

Mr. CAMERON. The conditions are very similar. I would say they are similar.

Mr. EDMONDSON. Mr. Metcalf, do you have any questions?

Mr. METCALF. No questions.

Mr. EDMONDSON. Mr. Saylor, do you have any questions?

Mr. SAYLOR. Yes, Mr. Chairman, I have a few questions to ask the witness.

First, you say there are five economic seams here?

Mr. CAMERON. Yes.

Mr. SAYLOR. Could you name them for us in order, beginning at the top and going down?

Mr. CAMERON. There is lower Hartshorne, upper Hartshorne, McAlester, Stigler, and Cherokee.

Mr. SAYLOR. Am I correct that in the coking coal you use down there you just take the regular run of the mine, there is no grading at all?

Mr. CAMERON. We wash our carbon coal. Our rejects run approximately 10 percent. At the new mine we load it raw and do a very good job of it. Some of it gets down to 4 percent ash.

Mr. SAYLOR. In the coal which you said was found in this area that had around 2.4 percent of sulfur, do you know whether or not that sulfur will wash out?

Mr. CAMERON. I believe the Star Coal Co. sent 25 cars of coal to Mr. Evans' plant in eastern Oklahoma and pressed that down, and I believe they were able to reduce that sulfur to one seventy-fifth, approximately. A lot of the sulfur in this coal is inherent, and there is quite a bit of pyrite which can be washed out.

Mr. SAYLOR. As I understood your statement here you are interested in mine safety. So am I. I have taken a good bit of credit for the original mine safety bill that went through. I am very interested in it and in its improvement, and if there are any improvements you have I will be happy to have your recommendations either now or after.

Mr. METCALF. If the gentleman will yield, I will say I am on the Committee on Education and Labor that handles that legislation, and also was chairman last year of a Subcommittee on Mine Safety in the metal mines, on which the gentleman from Pennsylvania had a bill and in which we are both interested.

Mr. SAYLOR. That is right.

Mr. CAMERON. Well, sir, in my opinion, there are 2 or 3 things in the mining code that are not practical. Of course, the preface of your mining code states it is not the intention of that code that the code was drawn up to apply to all fields; it would be give-and-take here and there. I still contend there are a few things in there that are not practical.

Mr. SAYLOR. I would be glad to sit down at a later time and talk to you here or correspond with you and take those matters up with you.

Mr. CAMERON. I will be glad to.

Mr. SAYLOR. I am interested in your statement here where you said that a lot of the coal in this area is very difficult to mine because of the gas. What ventilation systems are you using here now?

Mr. CAMERON. Almost exclusively exhaust type fan. At the present time we are putting approximately a hundred and fifty thousand cubic feet a minute through our carbon mine, and in the other mine we are

able only to get about 52,000 cubic feet a minute. But there is more or less of a doghole, and we have not had time to get the thing caught up.

Mr. SAYLOR. Have you considered or do you operate any long wall or retreat mining in this section?

Mr. CAMERON. No; we do not operate it. There is more or less a semilong wall system in the operation in one field. They drive two sets of entries and take out about a 200-foot face. That is where this German plow is working. Also the other operators in this particular field are operating the same system, only hand loading at the face.

Mr. SAYLOR. That is the mine where the German Kraut cutter is operated?

Mr. CAMERON. Yes.

So far as I know—I think I am correct in this statement—there has only been actually two attempts made at real long walling in this territory down here, one at Osage No. 5, another at Osage No. 8—and No. 9 now.

I might bring this fact out: Back in the early days when industry was really booming they mined out all of the crop coal on us. Now when we are going to put in a mine, with very few exceptions, we are going to have to sink 800-foot shafts to get into the coal. That is a tremendous expense, and it also starts out with a tremendous amount of cover over your working mine.

It is a problem. At the present time we are working under 1,300 feet of cover. That is the deepest anyone has ever worked coal in this country down here, and you have just got to go along and use the best judgment in protecting yourselves.

Mr. SAYLOR. In that type of coal mining you are actually in the experimental stage in this area because you have no pattern?

Mr. CAMERON. Insofar as cover is concerned; yes.

Mr. SAYLOR. That is all.

Mr. EDMONDSON. Judge Chenoweth.

Mr. CHENOWETH. You made a very interesting and very helpful statement to the committee. Tell us something about your coal-mining experience and background.

Mr. CAMERON. My father came to Indian Territory in the late eighties with the Missouri Pacific Railroad. He started mining at Lehigh, Savannah, Krebs, and also over at Arkansas.

Mr. CHENOWETH. Your father was a coal operator?

Mr. CAMERON. Yes; and he was also United States mine inspector down there shortly before statehood. After statehood he was——

Mr. CHENOWETH. You have been raised up in the coal industry, have you not?

Mr. CAMERON. I have been in it about 40 years.

Mr. CHENOWETH. Forty years?

Mr. CAMERON. Yes.

Mr. CHENOWETH. These two mines that you are operating are the property of the Lone Star Steel Co.?

Mr. CAMERON. Yes.

Mr. CHENOWETH. And that coal goes exclusively to that company?

Mr. CAMERON. Yes. When we first took the mines over from the Government in 1948, one of the terms of purchase was we supply Sheffield with a certain amount of coal for 5 years.

Mr. CHENOWETH. Are you producing their requirements?

Mr. CAMERON. That is what I said. We are not running at full potential because they keep us down to the actual requirements of the ovens at Dangerfield.

Mr. CHENOWETH. I do not catch just what you are bringing out.

Mr. CAMERON. Our mine is capable of producing 40,000 tons of coal a month.

Mr. CHENOWETH. Yes.

Mr. CAMERON. But they have us cut down to 20,000 tons a month because the ovens only require that much carbon coal. They are buying coal through the strip pits. If we get a good price and good coal.

Mr. CHENOWETH. You say you are buying coal?

Mr. CAMERON. The main thing is we are conserving our reserves.

Mr. CHENOWETH. I see. You do not want to produce more than 20,000 tons at this mine?

Mr. CAMERON. That is right.

Mr. CHENOWETH. You want to conserve it?

Mr. CAMERON. Yes; we cut down.

Mr. CHENOWETH. Who did you say the agreement was with that you produce so much?

Mr. CAMERON. That was when we bought the property from the RFC.

Mr. CHENOWETH. Then you are in a more fortunate position than other coal operators in this area, are you not?

Mr. CAMERON. Yes, sir; that is what I say.

Mr. CHENOWETH. Is there a demand for this metallurgical coal you are talking about here that you cannot fill?

Mr. CAMERON. Up to now there has been a demand for medium volatile coals from western Arkansas and eastern Oklahoma by Kaiser, United States Steel Co., Colorado Fuel & Iron, and Sheffield. They have their own.

Mr. CHENOWETH. Have you been able to fill those demands?

Mr. CAMERON. Up to now there has not been a demand for high volatile coal, but I think shortly there will be.

Mr. CHENOWETH. Your coal is high volatile?

Mr. CAMERON. We have both, one mine of each.

Mr. CHENOWETH. The demand from other companies is for low volatile?

Mr. CAMERON. Yes, sir; so far.

Mr. CHENOWETH. Is that demand being satisfied?

Mr. CAMERON. Insofar as I know, yes, sir.

Mr. CHENOWETH. How would you compare the number of mines in this particular area today, say, with back 30 or 40 years ago?

Mr. CAMERON. I became a member of the Arkansas-Oklahoma Operators Association about ten years ago, and I guess we had 65 to 70 members. We had our annual meeting last month and we had 14.

Mr. CHENOWETH. That is in 10 years?

Mr. CAMERON. Yes, sir. As far as I am cencerned, actually right now there are only three large deep mines in Oklahoma.

Mr. CHENOWETH. What has caused that high mortality rate among coal operators?

Mr. CAMERON. No market.

Mr. CHENOWETH. Just no market?

Mr. CAMERON. Yes. That is why I say in 1942 when the steel people came in here that was just a shot in the arm and a lifesaver. I doubt

seriously we would—well, we would probably have some production in the State if it was not for metallurgical coal, but it would be very small.

Mr. CHENOWETH. You made a very important distinction which I think has not been emphasized in our other hearings and which I think is of great importance to our committee. We are dealing with two types of coals here. The metallurgical coals are apparently going to be in demand.

Mr. CAMERON. That is right.

Mr. CHENOWETH. The steel works have to have those coals and are going to come to this area to get them?

Mr. CAMERON. Yes.

Mr. CHENOWETH. The domestic, home supply, and railroad markets are gone?

Mr. CAMERON. That is right.

Mr. CHENOWETH. Do you see any foreseeable demand for domestic coal at the present time supposing conditions remain as they are?

Mr. CAMERON. There is some talk about it, but as long as you can get 25-cent gas around here you cannot compete with it.

Mr. CHENOWETH. This gasification process: Take the experiment with it in Alabama. Has that ever been thought of in here?

Mr. CAMERON. No. The nearest place for that was in Missouri, the experiment conducted by the Missouri School of Mines.

Mr. CHENOWETH. Have you tried it?

Mr. CAMERON. No.

Mr. CHENOWETH. Has there been any actual demonstration or practical experiment made on it?

Mr. CAMERON. You are talking about setting the coal underground on fire and bringing it up?

Mr. CHENOWETH. That is right.

Mr. CAMERON. No, it has never been tried here.

Mr. CHENOWETH. It appears to me, just as a layman and not an expert at all in the coal field, that obviously one of the bright pictures in the future for the coal industry is going to be to supply gas to these pipelines when perhaps the natural gas supply will begin to be exhausted. What is the best process of doing that?

Mr. CAMERON. I would say definitely you would not want to do that with the good coking coal.

Mr. CHENOWETH. I mean with the other type.

Mr. CAMERON. That would be one possibility. I think you probably have a paper on that.

Mr. CHENOWETH. You mentioned that you recommended one process on cabonization, I believe you said.

Mr. CAMERON. Yes.

Mr. CHENOWETH. What do you mean by that?

Mr. CAMERON. Devolatilizing your coal and getting your char from it.

Mr. CHENOWETH. Are synthetic fuels involved in that process?

Mr. CAMERON. You get the volatile matter coming off of your heating process which would be very similar to your volatile matter coming off from your coke plant, and at the plant I think we have some 9 or 10 by products, and we have no trouble at all getting rid of them from the coke. In fact, we pump all by product coal tars to the

Riley Tar and Chemical Co. which has put in a plant adjacent to our plant.

Mr. CHENOWETH. How big is the Lone Star Steel operation? How many men are employed at the steel plant itself?

Mr. CAMERON. About 4,500.

Mr. CHENOWETH. 4,500?

Mr. CAMERON. Yes.

Mr. CHENOWETH. Then your coal mines employ 4 or 5 hundred?

Mr. CAMERON. Approximately five hundred. Right now we are down to about four hundred twenty-five, which is probably a hundred men below the maximum.

Mr. CHENOWETH. You have the largest coal operation, you say, in the State of Oklahoma?

Mr. CAMERON. We do now since Mr. Wells went out of business.

Mr. CHENOWETH. That appears to be a rather steady program there. Is that right?

Mr. CAMERON. Yes.

Mr. CHENOWETH. You do not foresee any immediate change?

Mr. CAMERON. No, I do not see any change at all from a five-day-a-week operation.

Mr. CHENOWETH. What is the attitude of the Arkansas-Oklahoma Coal Operators Association? How do they feel generally about the future of coal? You said you had a meeting just recently.

Mr. CAMERON. Perhaps half the membership are fortunate enough to have metallurgical coal. The balance of the membership are vitally interested in any research that would possibly help them out.

Mr. CHENOWETH. When this great demand for coal comes how are you going to supply it here in this coal field? Your mines have been abandoned. Are you going to open up new mines, going to use the strip mines? Where are you going to get all of this coal?

Mr. CAMERON. In my opinion, the life of strip mines in Oklahoma is probably 10 years at the outside. At the present time plans are already in the mill for five mines.

Mr. CHENOWETH. Five?

Mr. CAMERON. Yes.

Mr. CHENOWETH. New mines?

Mr. CAMERON. They will all be used for metallurgical coal.

Mr. CHENOWETH. Then you are short of metallurgical coal now and you need these five mines to supply the demand?

Mr. CAMERON. They are getting just what you said. They are preparing themselves for the time when strip coal goes out.

Mr. CHENOWETH. I see. I knew you were enterprising people in Oklahoma. You are looking a long way ahead and I think you are very wise in doing so.

Mr. CAMERON. We have our acreage, and it is all laid out and we will develop it. But these five mines are outside people. I will take it back. One of the proposed mines is by Sheffield—Armco.

Mr. CHENOWETH. You are practicing conservation methods in the coalfields the same as the oilfields, are you not?

Mr. CAMERON. We try to, but the percentage of recovery is very small. I think our 2 mines, probably on advanced work are recovering about 42 percent, and we figure as we come out we can pick up an additional 8. That is on our standard operation.

Mr. CHENOWETH. It is very interesting, Mr. Cameron. I appreciate your observations.

That is all, Mr. Chairman.

Mr. METCALF (presiding). Do you have any questions, Mr. Soule?

Mr. SOULE. No questions.

Mr. METCALF. Thank you very much. You have given us very helpful and informative testimony, Mr. Cameron.

The next witness is Mr. Gene Taylor.

Mr. TAYLOR. I am Mr. Gene Taylor.

Mr. METCALF. We are glad to have you with us. Identify yourself for the record and go ahead with your testimony in any way you see fit.

STATEMENT OF GENE TAYLOR, BEN HUR COAL CO., HENRYETTA, OKLA.

Mr. TAYLOR. I am Gene Taylor, in charge of operation of the Ben Hur Coal Co. located here in Henryetta. At the outset of my remarks, I wish to express our appreciation for the opportunity to meet before this committee.

We are, of course, very much in need of some research to assist us in the marketing of this coal. The depressed conditions that have been indicated at this hearing are particularly true with reference to Henryetta coal.

For the last several years we have been confined entirely to participation in the domestic or space heating, and the northern sections of our market actually are confined out of State—Iowa, Missouri, Kansas, and a portion of the northern States.

I do not think in my remarks it is necessary to point out the depressed conditions in this field. They speak for themselves. It has not been a great long time back that we had an operation within this field some 35 mines. Today we are the last remaining mine.

Mr. SAYLOR. Mr. Taylor, you operate, I think, the only remaining mine, or so I was told this morning. Is that right?

Mr. TAYLOR. That is right.

Mr. SAYLOR. You had several mines before and you are now down to one mine?

Mr. TAYLOR. We have not had several at one time. We have had othe mines but we have never operated but one, and we are tight shut down at that particular mine.

Our activities in the past few years have been that of plowing back what meager profits we were able to eke out of the business on seasonal working time to the end of mechanization. We have at the present time in the Blackstone mine at Henryetta probably as highly a mechanized operation as you will find in any part of the country west of the Mississippi River. We are using mechanical loaders, shuttle cars, belt transportation, hence into large capacity steel cars and a modern preparation plant.

These things became necessary to maintain ourselves in any competitive position at all, and even with the advancements we have made in mechanization we have found it very difficult to survive.

We have, I believe, hit upon what could be properly described, as you put it, Congressman Saylor, as a drop in the bucket, and we have something we believe to represent one of those drops in the bucket

that you so ably expressed a few minutes ago, and that has to do with the joining of hands with the zinc industry, particularly in Oklahoma and some parts of Texas, and producing for their requirements a volatilized char they use in their zinc-reduction process.

The future of carbonization or the subject of carbonization is not at all a stranger to our thinking. Back in our efforts at survival in a pitiful sort of way, we have attempted to devote some thought to the possibility of even local research to meet our problem.

Back in the late thirties we undertook to put in at that a carbonization kiln for the purpose of supplying the industry that I mentioned, and that industry in point is the zinc industry.

The matter was taken up with the Allis-Chalmers people, and we were right on the verge independently of purchasing a kiln for that purpose when the war hit us. And right at the point of discussion with the Allis-Chalmers people they came in with a wire on that very day and indicated that further commitments of their industry would stop and they were going a hundred percent into the war efforts. Our efforts along that line at that time were dropped.

At a later time, back as a matter of fact in the year 1952, this question of availing ourselves of the rather substantial—in the way we think in terms of coal in this area—market in the zinc industry, we again revived the possibility of going into the carbonization of Henryetta coal for the purpose of supplying this industry.

We had a short space of time naturally from the announcement of your committee's visit here to revive this. However, we are fortunate in that the records of our previous undertaking have all been preserved, and we have taken a rather, I might say, horseback reconnaissance of the attitude on the part of the zinc people in the last 3 or 4 days, and we find that their attitude and need for that particular fuel or carbon is still existent and in like proportions as it was at the time we made our initial inquiry.

What will have to be done, or the plan in general was—and again we see this very beautiful picture of what is to come, great prospects that are to come with respect to the coal industry within the Southwest. We have disintegarted to such a point that it is a matter of self-preservation, not only for our own properties, but our men at this state are out of employment. A great number of them are moving into other territories, going out into Utah, New Mexico, and various other places where they can obtain employment, and we have a very critical situation involved here.

We welcome this investigation coming to us. In spite of some of the theories that have been advanced here, we at this time particularly need help in research. It is not a sure thing that the char material that we have made and submitted to the zinc industry will be 100 percent accepted. As a matter of fact, their position has been, and I presume it is still, that they would like to have us, the coal people, set up a pilot plant, the plant to be located adjacent to the Eagle Pitcher zinc smelters here at Henryetta. And we are in agreement. And when I say "they" my direct reference is to the Eagle Pitcher Co. at Henryetta, the National Zinc at Bakersville, and the American Metal at Blackwood, Okla., all in Oklahoma, and the American Zinc plant at Dumas, Tex.

The program in its initial stage was conducted by an organization that was set up here in the Henryetta field, referred to then as the

Henryetta Coal Research. The money was raised by popular subscription from all segments of industry, the mine workers local union, business people, and the coal company.

This matter was pursued with the zinc people and culminated in a meeting after—I am a little ahead of my story. First, we secured the services of a rather well known and recognized authority in carbonization of coal from your area, Mr. Saylor, a gentleman by the name of Carl E. Lesher, with whom you may or may not have made acquaintance.

By virtue of his background, having conducted a lot of carbonization work for Pittsburgh Coal and others in that area, we felt we needed the best talent because we had a hard problem, and we were successful in raising enough money in this area to bring Mr. Lesher out here, who conducted these experiments, and, incidentally, prepared a very comprehensive report as to its feasibility, together with the mechanics of what had to be done, the nature of the equipment, the cost of the production of this material. It is in a very complete form to date. Cost figures, of course, will have to be revised because there have been substantial changes in the economics of this thing since that time.

But essentially the program was based upon the use of Henryetta coal in a carbonization process, the extraction of the tars, which incidentally in this coal here represented in our calculations at that time somewhere in the neighborhood of 20 gallons per ton of coal, which in his calculation would indicate actually somewhat more than the cost of the mechanics involved in carbonizing the material.

These reports, this data, are at hand. They are somewhat lengthy. We would be glad to submit them as an exhibit of our undertaking in this field to salvage through research some market that is badly needed.

The thing that I intend to say with respect to the necessity of research on it is simply this: That the zinc industry are wholeheartedly in favor of the establishment of this carbonization plant within the field, but they—and I think in very good judgment—expect it to be started on a small scale, utilizing the existing plant here as a trial ground to the extent of some 8 or 9 tons of the charred material in a 24-hour period. It was their intention to set aside 1 or 2 of their blocks to conduct this experiment.

I have a memorandum here which I believe should be of interest in this connection because it pins down generally the attitude of the zinc people in this connection. With your permission, if you are interested, I would be glad to read it. It is over the signature of a very recognized zinc metallurgist in this area by the name of McCutcheon, who was the general manager of the smelters here at that time. Would you care to hear it?

Mr. METCALF. I think it would contribute. Go ahead and read it into the record.

Mr. TAYLOR. The letter in question is more or less of an intercompany memorandum, and is addressed to Mr. Isern who is the vice president in charge of mining and smelting at that time.

Mr. METCALF. What is the date of that?

Mr. TAYLOR. This letter is in line with the date I have given in 1952, some 5 years past. [Reading:]

Mr. Taylor called and briefed me—

this is from McCutcheon—

on the progress made in the investigation concerning the devolatilization or charring of local coal. This investigation to date has been carried on under the direction of Mr. Carl Lesher, an authority on such a process, and the results are as of now that an experimental plant costing (blank) dollars—

at that time because it certainly would not be the same now—

should be set up to prove or disprove the applicability of the charred product in zinc smelting requirements.

Mr. Taylor inquired into the possibility of setting the unit on the smelter site where we would have some control over fashioning the char into the most desirable product for retort needs. I told him this was out as we do not have the space, but it might be possible to work out something in the way of temporary site on the land north of the smelter, on which Eagle Pitcher owns or controls the surface.

This experimental plant would be small, handling only enough coal to produce 6 or 7 tons of charred product daily, which I assured him he would try experimentally as a reduction fuel, provided that the volatile fixed carbon ash sulfur in price was competitive with coal.

He meant with coal that they were purchasing at that time.

We would not accept responsibility for the laboratory work necessary for the operation of the experimental plant.

Regarding the amount of money necessary to conduct the experiment, they proposed that all parties interested contribute toward it. This means local businessmen, the coal miners union, the coal companies, and the prospective users of the charred product.

I advised Mr. Taylor that the smelter would be willing to try the char in one furnace to determine the usability, but that contribution toward defraying the cost of the experimental plant would have to come from our Miami manager.

From the smelter's viewpoint, we can see an improved atmosphere within the furnace building with the use of the car, provided the volatile is reduced below that of coal now in use.

The points to be watched are density of char and ash and sulfur content.

From the viewpoint of Henryetta and the community, a charring plant would be very desirable, as it would allow for practically continuous coal mining operations, reducing the down time during summer months when little coal is used for domestic consumption.

We would like very much to have your expression as to what extent you would be willing to go along these lines.

As I previously mentioned, there were four zinc industries involved in this attempt. The aggregate tonnage or the amount of material used by those 4 companies was something in the neighborhood of 10,000 tons of char per month, which in force and effect as to conversion from char into coal or vice versa, would mean an addition in market then as it will now, to this field of some 150,000 tons of coal a year.

In describing our situation as the last producing company here, that tonnage coupled with the domestic tonnage which we still have left, that is, some would represent a rather health situation to the end of employing the men who are now out of work in this field. As a matter of fact, it would involve steady employment for some 250 men.

That total of men is confined entirely to the mining operation. Of course, we would have some additional personnel involved in the char plant, and which would be added to as the experiment continued, and devolved itself into a final plant.

That is more or less the story with regard to the effect on labor within that field. I think that is probably about the story in the sequence of what has happened to us, what we have done to attempt to maintain ourselves as a producing company here, what the meaning of the term

"research" in our industry means to us. We are opposed completely to the theory that research is not going to be helpful to us.

We need help and we need it now. We are adamant in our position that certain moneys should be made available to some agency of the Federal Government, so that when somebody comes up with something in the role of an emergency that we are confronted with, that we could go to them for help in carrying this out. Had we been able to do so at the time—and the reason at that time we were not able to do so was the lack of funds to do it with—had those funds been made available at that time, we today would have had some 250 men working at the Blackstone mine, whereas today it is down for the lack of market.

I will be glad to answer any questions.

Mr. EDMONDSON. The subcommittee will take a short recess.

(Whereupon, a short recess was taken, following which the hearing resumed, as follows:)

Mr. EDMONDSON. The subcommittee will be in order.

Mr. Metcalf, did you have any questions of this witness?

Mr. METCALF. No questions.

Mr. EDMONDSON. Mr. Saylor.

Mr. SAYLOR. Mr. Taylor, first I would like to congratulate you on the statement you have made, and I would like to commend you on the fact—which is typical of most of the people I have known in the coal industry—that you have not just sat idly by and waited for somebody to come to your funeral. You have seen the effect of what has happened to those who sat by, and you just determined that was not going to happen to you. I am delighted to know it.

Do you feel, Mr. Taylor, that probably this committee could do not only your company, but the industry as a whole a great deal of good if we devoted a considerable portion of our attention to the field of research as far as marketing itself is concerned?

Mr. TAYLOR. Congressman Saylor, my answer to that is that I think that is our only salvation. It has been definitely determined here, in view of the testimony that has been previously given, that the markets on which we depend are just about nonexistent. Therefore, it certainly behooves us and your committee, I would say, to do anything along the lines of research to develop other markets.

Mr. SAYLOR. I think that your recommendation, or the research that you have already done, and the company has done, is very beneficial, and I certainly will see to it, as far as I am concerned, that we will look further into it and see what, if anything, can be done to give you a lift, to see if we can cooperate with the Bureau of Mines in producing something beneficial to both you and the lead and zinc industry.

Mr. TAYLOR. Thank you.

Mr. SAYLOR. That is all, Mr. Chairman.

Mr. EDMONDSON. Judge Chenoweth.

Mr. CHENOWETH. I would be interested in knowing something about your company, Mr. Taylor, your background, operations in the past, tonnage, number of men employed, as compared to what you have right now.

Mr. TAYLOR. The history of our operation, or our company commenced within the Oklahoma coalfields back in 1925. We were natives

of Kansas, and my father made an investment in the Henryetta field, and as it progressed we moved down here to Oklahoma. My brother, myself, and mother are still here. My father passed away in 1945.

Mr. CHENOWETH. This was a company owned by your family?

Mr. TAYLOR. Yes, sir. It was a mine that my father became interested in while working for another coal company while in the State of Kansas, and it was an investment of the family. We came down here, my brother and myself, and undertook to run it. I went into the operating end of it from the standpoint right from the mine on up, and he pursued the sales end of our business.

Mr. CHENOWETH. What was your principal market?

Mr. TAYLOR. The principal market for domestic coals at that time, at the inception or start of our company—we had a very substantial amount of market in the State of Oklahoma, some in Texas, Kansas, Missouri, Iowa, and Nebraska.

Mr. CHENOWETH. Domestic market?

Mr. TAYLOR. Strictly domestic coal, Mr. Chenoweth. Space heating would be the proper terminology.

Mr. CHENOWETH. How many men were you working at that time?

Mr. TAYLOR. We started in in our first mine with possibly 90 to 100 men, and the coal complement to our present mine which has been in operation—I mean the number of men who have been actually working in the last 5 years approaches 250, with a daily production of some 1,000 to 1,200 tons. At this time we are down to a crew of about 90 men, with somewhere in the neighborhood of 500 to 700 tons a day.

Mr. CHENOWETH. When did you suspend operations here?

Mr. TAYLOR. Mostly recently?

Mr. CHENOWETH. Yes.

Mr. TAYLOR. As of this month. We had been operating since August on a steady run, taking care of the needs of the domestic market since August of this last year.

Mr. CHENOWETH. The domestic market is now satisfied for this year?

Mr. TAYLOR. Yes, sir. We are strictly a seasonal operation, starting usually in June, July, or August; whenever we can assemble enough business to get started, and then carry on our operation until usually the last of February.

Mr. CHENOWETH. You will start up again next August, or somewhere in there?

Mr. TAYLOR. I would anticipate we are going to try to make it a little earlier this coming season.

Mr. CHENOWETH. Are you able to keep your men during this off-season period?

Mr. TAYLOR. Unfortunately, that is one of our most complex problems. We are not able to keep our men. In an attempt to maintain and develop a highly mechanized mine, it is a terrific loss to us. We will get a group of men skilled in the handling of the machinery necessary for production, and during our off season naturally they have to drift into other work to provide a livelihood for their families. A great number of them are confronted with the situation of maintaining their homes here and working in other areas, which is very bad.

Mr. CHENOWETH. These men have to be skilled miners to work in a mechanized mine of your type; do they not?

Mr. TAYLOR. Yes, sir. The use of conventional type mechanical loaders and shuttle cars and that type of equipment requires somewhat more and longer schooling than the old system of pick-and-shovel operations.

Mr. CHENOWETH. You said something, I believe, that you had the most highly mechanized mine in this area.

Mr. TAYLOR. That is true.

Mr. CHENOWETH. Are you familiar with the operation of the Colorado Fuel & Iron Corp. in Colorado, in their new Allen Mine, near Trinidad?

Mr. TAYLOR. No, sir; I am not.

Mr. CHENOWETH. I hope you will come up and visit that mine sometime.

Mr. TAYLOR. I would like to very much.

Mr. CHENOWETH. They claim to have the most modern and highly mechanized mine in the country. I think you would be interested in its operations.

Mr. TAYLOR. All right, sir.

Mr. CHENOWETH. You are to be commended, Mr. Taylor, for what you have been trying to do to preserve the operation of your company and find new markets. This char operation you mentioned, you were going to furnish so much char to the zinc industry?

Mr. TAYLOR. That is right.

Mr. CHENOWETH. What would that replace they are using now?

Mr. TAYLOR. The situation in which the zinc industry today finds itself is that the coal from Arkansas which has been—their specifications of their material are very exacting—they want carbon actually, and with very little tolerance to high volatiles or ash or sulfur. And the materials that they are receiving over there is produced in strip mining which, as we know, is rather difficult to control without a washing plant which in this instance they do not have. Theirs is not a sizable market. So they are confronted with a situation that is bad for them, and they know that with a laboratory-controlled carbon, which can be manufactured right within this area, and the personnel of their engineering department and their laboratories can commute back and forth from the zinc smelters to the production area of that material, would lend itself to greater efficiency, which they need very badly in their industry.

Mr. CHENOWETH. Would the amount of coal that you would use in the production of that char replace a similar amount of coal they are now using in the plant?

Mr. TAYLOR. It would replace a coal that they are now using which they are finding very difficult to obtain. As a matter of fact, it is nearly extinct. There is some not in that area. I cannot go into the circumstances involving their present supply, but I do know of their interest, and their interest is solidly behind the proposition of obtaining a carbonization plant to serve their industry.

Mr. CHENOWETH. They are using Arkansas coal now?

Mr. TAYLOR. Yes, sir.

Mr. CHENOWETH. Could they use your coal here?

Mr. TAYLOR. I may modify that to this extent: They are using Arkansas coal, and then they are bringing in, in order to beneficiate the Arkansas coal—they are shipping in from points as far north

as Michigan and Illinois a coke in order to build up the carbon properties of that material.

In the instance of this carbonization plant here having already been proven, they would no longer have to do that, which would be quite a help in the efficiency of their operation.

Mr. CHENOWETH. The coals you produce in this area are not something they could use then?

Mr. TAYLOR. The coal we produce?

Mr. CHENOWETH. Just the coal itself, like the Arkansas coal?

Mr. TAYLOR. The coal we produce within the confines of the Henrietta field run through a carbonization process is exactly what they need.

Mr. CHENOWETH. The coal itself.

Mr. TAYLOR. Without carbonization, no. It is high volatile and they want low.

Mr. CHENOWETH. That is what they get from Arkansas.

Mr. TAYLOR. Yes.

Mr. CHENOWETH. You have none of that type of coal at all here?

Mr. TAYLOR. No. And it is very much depleted in the Arkansas fields.

Mr. CHENOWETH. As of this moment here is your mine temporarily idle. Here are these people who would like to have char?

Mr. TAYLOR. Yes, sir.

Mr. CHENOWETH. What is the next step to provide this char?

Mr. TAYLOR. It would require financial help mainly, and a certain amount of technological help to come into this area and assist us in building a pilot carbonization plant right within the immediate area of Henryetta and adjacent to the zinc smelter which is already here.

From that, when that is a proven process—and the experimentation has already been pledged by the zinc interests—then this material in this final stage would move into various other zinc smelters within the State of Oklahoma and Texas.

Mr. CHENOWETH. You have to have a pilot plant to complete the experiment?

Mr. TAYLOR. That is right. We have got to carbonize this coal to meet their needs.

Mr. CHENOWETH. What would the pilot plant cost?

Mr. TAYLOR. That is rather a difficult thing to answer at this time, but it would no doubt run—in the first phase the pilot plant should be built in a unit, without complete loss, so it could be utilized in the further expansion program of the char process. In endeavoring to determine the prices that we have in our detail here as compared with now, it is a rather difficult thing to do. But in round figures, I would say that this pilot plant could be established at a cost of something in excess of $100,000. The total plant required to take on the other phases of this market, the preliminary estimates at the time this material was prepared were in the neighborhood of $850,000, and probably at that time we might be safe to increase it, I would say, 25 to 30 percent.

Mr. CHENOWETH. As I understand, the zinc companies said they were willing to contribute to this experimental process?

Mr. TAYLOR. That was their position.

Mr. CHENOWETH. They do not want to carry the whole load?

Mr. TAYLOR. That is right.

Mr. CHENOWETH. They feel all of the interested parties should do their part?

Mr. TAYLOR. That is exactly right.

Mr. CHENOWETH. And that is the way you feel about it?

Mr. TAYLOR. Yes, sir.

Mr. CHENOWETH. Could the State of Oklahoma participate in that and spend some of the $50,000 made available for research work?

Mr. TAYLOR. This matter has been brought to the attention of Dr. Klemme, and I might say he sheds an additional light on this subject.

First of all, he indicated that in all of his interviews with out-of-State industry, or industry generally, which, of course it is his mission to attract into this country and develop, that the most paramount issue that he is confronted with in a great portion of that industry is the need for a commercial carbon or coke. Not necessarily applying to the steel phase of the industry within the State of Oklahoma, but to other industries such as, for example, the installation of the calcium carbide plant in the Pryor area.

As one of the products in the reduction of zinc, they use carbon in the manufacture of calcium carbide. That is the market. There are others. We, being isolated down here and not having the opportunity to study or make a market study of this thing, are not familiar with it, but we do know they exist, and particularly when it is confirmed by this able head of our commerce and industry department within the State of Oklahoma.

Mr. CHENOWETH. Does he feel you should go ahead with this?

Mr. TAYLOR. Does he?

Mr. CHENOWETH. Is he enthusiastic about it?

Mr. TAYLOR. He certainly is. As a matter of fact, this revival of this project we have in mind here stems from his encouragement, because he feels—not having investigated as it approaches the zinc industry, as I have related, he indicates it is something he is confronted with continually in all negotiations for industry.

Mr. CHENOWETH. Do I understand you would have to have a million dollars in sight?

Mr. TAYLOR. To complete the full plant. That is strictly an estimated figure based upon certain engineering reports that we have, which were prepared back in 1952. All of the economic changes attendant to the cost of that plant as to what it would cost now, would have to be considered.

Mr. CHENOWETH. How about the technological skill—is that available?

Mr. TAYLOR. We have no difficulty in that respect. Tremendous research, even since the advent of this report here, has been carried on continuously. We feel it would be a rather simple matter to go into it. But primarily in our minds, since the advent of this investigation by your committee, we feel father secure in asking that the technological part of this—we feel it would probably be in line to call on the United States Bureau of Mines for assistance in that connection. They have made untold studies of the very thing we are attempting to do to salvage this coal field down here.

Mr. CHENOWETH. Are you a member of the Bituminous Coal Research, Inc., in Pittsburgh?

Mr. TAYLOR. No, sir.

Mr. CHENOWETH. Are you familiar with their operations?

Mr. TAYLOR. Yes, I am.

Mr. CHENOWETH. Dr. Rose, who is head of their research program, appeared before the committee in Johnstown, Pa., and indicated that if he had more funds available right now, he still did not have the skilled men and trained men that he could put to work because there is a shortage. That is why I asked you about this technical skill, whether you have it or not.

Mr. TAYLOR. Of course, there would be a personnel training program involved in this thing. But usually in a matter of this kind, the carbonization of coal, is not—I will not say it is such a terrific problem. It is a matter of certain physical operations and analysis of material resulting from those operations, and I believe that that technical assistance is available.

Mr. CHENOWETH. Are you taking any steps now of any nature to effect this experimental program which you have described? What is the present status of it?

Mr. TAYLOR. Have we engaged in any activity to revive this?

Mr. CHENOWETH. Are there affirmative, aggressive steps being taken to obtain this plant?

Mr. TAYLOR. Nothing other than the contact between us and the zinc industry. It is our belief and understanding at the present time that their attitude is unchanged. They still want this product.

Mr. CHENOWETH. They are ready to go ahead?

Mr. TAYLOR. Yes, sir.

Mr. CHENOWETH. What remains to be done, then? What is the next step to take?

Mr. TAYLOR. We have got to through some medium—and of course we look to legislative action on the part of the Congress—to get necessary funds to this locality here to assist in the preliminary steps, or to assist at least in the development of a pilot plant to carry this thing out. We are very gratified in Dr. Klemme's remarks this morning, which comes as news to us, that the State of Oklahoma is going to set aside certain funds to be used in connection with matters of this kind.

Mr. CHENOWETH. The Bureau of Mines is spending considerable money now on research work. Do you think maybe we should increase their appropriations and spend some of it here to help you?

Mr. TAYLOR. There is no question in that regard. That is the bottleneck in our entire effort down here, in maintaining a producing coal mine and keeping our men employed, and that assistance would be most welcome.

I think in your travels over the entire country—this maybe will sound a little selfish—I do not believe you are going to find a situation that needs it any worse than the Henryetta coalfields, and we need it now.

Mr. CHENOWETH. This has been very interesting. You have made a very valuable contribution to the study of the committee as far as I am concerned.

Mr. TAYLOR. Thank you.

Mr. CHENOWETH. That is all.

Mr. SAYLOR. Just one more thing, Mr. Taylor.

I am glad to know that Dr. Klemme has brought to your attention the shortage of carbonization fuels. I can tell you that it is so serious that at the time of Korea the Federal Government actually authorized the construction of some old-fashioned beehive coke ovens with the absolute waste of all of the byproducts, just so they could get coke.

Mr. TAYLOR. Yes, sir.

Mr. EDMONDSON. Mr. Soule, do you have any questions?

Mr. SOULE. Yes, Mr. Chairman.

Mr. Taylor, you mentioned that the operation you have in mind would use about 150,000 tons of coal per year.

Mr. TAYLOR. Yes.

Mr. SOULE. Which, at 20 gallons of tar and oils per ton, would amount to about three millions gallons per year?

Mr. TAYLOR. That is right.

Mr. SOULE. I believe the subcommittee would be interested in knowing what you propose to do to dispose of the byproducts, tars and oils, and the credits you probably would obtain for that.

Mr. TAYLOR. A companion move to our endeavors in this thing, Mr. Soule, was to contact one of the dealers in that raw product that you refer to, the tars to be extracted from this coal. In this instance, your figure is correct. In our calculation it was some 20 gallons to the ton of coal. The Koppers Co. is one that was contacted and advised us that they had and would maintain a steady market for that material. Prices were quoted as to what they could pay for it, and it was used in a manner of calculation as to what the end cost of this process would be.

It was determined that the marketing value of the tar itself would practically offset the cost of the carbonization process.

Mr. EDMONDSON. Mr. Taylor, I think you have made a very fine statement. May I assume you are testifying for yourself and for your brother, Ellis Taylor?

Mr. TAYLOR. I am testifying for Ben Hur Coal Co., Congressman Edmondson.

Mr. EDMONDSON. I was out of the room for a moment, and I understand the chairman called Ellis Taylor as well. Would he like to add anything to what has been said?

Mr. ELLIS TAYLOR. I appreciate the invitation, gentlemen, but I believe my brother has covered it very ably. Thank you very much.

Mr. EDMONDSON. There are a number of representatives of the railroads of the area who are here, and who have been here throughout the day. We certainly appreciate their attendance on the committee, and their interest in the problem.

I would like to note for the record the presence here of Mr. Lee Hall of the Frisco Railroad from St. Louis.

I think Mr. Binder has also been here throughout the day, Mr. C. J. Binder, and Mr. Leland Bartlett from the Missouri Pacific Railroad.

Is there a Mr. Jenkins of the K. O. & G.?

Mr. JENKINS. That is right.

Mr. EDMONDSON. May we have your full name?

Mr. JENKINS. Dan J. Jenkins, Jr., Midland Valley and K. O. & G.

Mr. EDMONDSON. We are very pleased to have had all of you gentlemen here.

Mr. Binder has indicated that he has about 3 or 4 minutes of testimony he would like to give us, and we would be very happy to have you come forward.

STATEMENT OF C. J. BINDER, REPRESENTING THE MISSOURI PACIFIC RAILROAD, ST. LOUIS

Mr. BINDER. I represent the Missouri Pacific in the capacity of coal traffic manager.

I think at the start I ought to say, as always, for many years there has been a bond of interest enduring between the coal companies and the railroads, and I am happy to say that is still the situation.

Of our traffic consist, coal provides some very desirable tonnage and revenues. Whatever helps the coal industry certainly finds the railroads beneficiaries of that help in about a proportionate degree.

All of the railroads have an interest, and I think that was evinced by the fact that the Association of American Railroads appointed a committee to take part in these proceedings. I am happy to say that I am one of those delegated to be a part of that.

The original plan of the committee was to have delegations and members of the general committee at all of these hearings, and at those hearings express their views as to this program. Subsequently, and very recently, I understand that Mr. William Maloney has addressed the honorable chairman here suggesting that it would probably make a better record in the interest of this proceeding—and I understand in that connection they have the concurrence of the National Coal Association—to have a later hearing, the last one of this series, at Washington, at which time the railroads hope to put in their showing.

For myself, I think I can say that the railroads, without making any commitments at this time, are in favor of the general purposes of this inquiry. If some research program is initiated, they will have something to say at this final hearing as to the administration and direction they think the proceedings should take.

I was on this committee, but, as with your committee, you cannot have all the railroads attend all of these meetings, and so I came down.

With me are Mr. Lee Hall, general traffic manager of the Frisco Railroad, coming down from St. Louis. Mr. J. F. Holsben, of the Midland Valley; and Mr. Dan Jenkins, Jr., representing the K. O. & G.

Coming down from Tulsa as a representative of the Frisco is Mr. Blagg, and Mr. Leland Bartlett, of the Missouri Pacific.

I think that gives an idea of the interest these railroads have, and our interest here and our appearance here is not just for this particular railroad, but for the railroads in this particular section of the country.

That is about all I have to say, Mr. Chairman, except I have one more observation. I do not know whether it is purely something that might be considered research.

But in my visits with some of these coal people, particularly in this western district, in the last 4 or 5 months, they brought up the question of export coal.

Now, it seems to me export coal would provide a very desirable market for these people. We know that the export business, along with the utility business, is about the greatest growing piece of coal business we have today. Unfortunately, these people in this section of the country are precluded from engaging in that tonnage, and that movement. It is not because of the rail freight rates, because I think on their export business they have about as favorable a freight rate as any rate I know of in this country. The thing that keeps them out, I think, is the low water rate from foreign countries, particularly Japan and Australia, perhaps Singapore, that sort of place, and Drake Settlement.

At one time, I understand, they did participate in a sizable movement. They were able to do that in competition with this low-price Oriental labor and steamship rates by a directive of the Government agency handling that, whichever one it was, proclaiming certain areas as distressed areas. You are probably familiar with that.

When I inquired about that with the people in Washington, they told me there was another directive issued, stating that coal for Korea, for instance, had to be bought in the world market. Well, these people are entirely out of it if they must compete with the world market, especially with the low wages and low freight transportation charges by water.

I was just going to leave that thought in your mind, Mr. Chairman. That might be something to explore, if that reasonably comes within the idea of research.

Mr. EDMONDSON. It is a very good item. Thank you for your statement.

We have been aware from the start of these hearings of the interest of the railroads. Mr. Maloney has been assured he will be heard in Washington before we conclude these hearings, and we will await with interest the opinion of the railroad industry on the specific recommendations of the National Coal Association and other groups as to a research program.

I do not think there is a member of this committee who probably did not participate in some of the discussions with Mr. Stassen and others in the administration, to secure distressed coal designations and export shipments for their areas. As far as it went, I think the program was definitely a help, but it did not go nearly as far as some of us would like to have seen it go. I believe I speak for everybody in that regard.

Mr. Metcalf, do you have any questions?

Mr. METCALF. No questions.

Mr. EDMONDSON. Mr. Saylor.

Mr. SAYLOR. I have one question.

At every hearing we have had up until this point, we have heard the railroads criticized by the operators because they have not been able to furnish them sufficient flats to transport coal. Down here in this area where there has been very little mining of coal, and where you are down to one mine I have not heard that mentioned by an operator, or by the union representative.

As a representative of the railroads, has any shortage of flats for the transportation of coal come to your attention?

Mr. BINDER. Not in this particular area. I might say that we were rather fortunate in that respect, helping out some of the other rail-

roads on their supply when there was a little tightening of their car situation. As Mr. Phelps said this morning, I do know there was a shortage over in the Kentucky field.

Mr. SAYLOR. Do you know whether or not your railroad or those that you said had representatives here have ordered any freight cars, or have them on order at the present time?

Mr. BINDER. I am sure there are cars on order coming. The details of it I cannot give to you at this time. I am sorry.

Mr. SAYLOR. That is all, Mr. Chairman.

Mr. EDMONDSON. Judge Chenoweth.

Mr. CHENOWETH. How do you handle your export business here? Where do you take it?

Mr. BINDER. It would have to go through either New Orleans, or some Texas port.

Mr. CHENOWETH. Which would be the shortest?

Mr. BINDER. Texas would be a little shorter. As to rail handling, Texas would be a little shorter than New Orleans and Mobile, but the rates are equalized, so the rail rates could not enter into it. I think the ocean transportation, since you must go through the Panama Canal, would be pretty much the same.

Mr. CHENOWETH. You said you had a very favorable freight rate.

Mr. BINDER. Yes, sir.

Mr. CHENOWETH. More so than in other coal areas?

Mr. BINDER. I would say on export coal we do.

Mr. CHENOWETH. What brought that about?

Mr. BINDER. It was brought about first by the thing Mr. Puterbaugh was talking about. And I want to thank him for the nice sendoff he gave the railroads about their freight rates.

To help out a movement going to Sheffield Steel Co. to develop that Arkansas-Oklahoma movement, particularly Oklahoma, we put in a special rate, and the Interstate Commerce Commission gave us a lot of help in that in giving us section 4 relief to protect a lot of intermediate territory, and that involved into an export rate.

Mr. CHENOWETH. Do I understand the Missouri Pacific made an effort to obtain some more export business for this area?

Mr. BINDER. That is about a year and a half ago. I was over to see—I do not recall the name of the man. I had to see some civilian employee in the Navy Department.

Mr. CHENOWETH. You were in Washington yourself?

Mr. BINDER. Yes, sir; on a visit. He was procuring coal for the Army. That is one of the workings over in Washington I did not understand. Before they issued this directive that they had to buy in the world market, they were getting some coal down there.

Mr. CHENOWETH. We have been trying to get some export business in Colorado. You might get the Missouri Pacific a little business out there.

Mr. BINDER. No; I am sorry. As much as I would like to see that, the west coast steamship rate is so much better than the rate from the gulf ports, we cannot. But there is a movement, a regular movement, coming from Utah, going to Seattle and Portland for the Orient.

Mr. CHENOWETH. We have tried to get some export business in Colorado, but have not been able to do it.

Mr. BINDER. My friends in the D. & R. G. tell me about that.

Mr. CHENOWETH. Maybe you can collaborate with them in some procedure to help us out a little on this business.

Mr. BINDER. I would sure love to.

Mr. CHENOWETH. We would appreciate anything you can do.

Mr. BINDER. We want to help ourselves, though.

Mr. CHENOWETH. That is all.

Mr. EDMONDSON. Thank you very much, Mr. Binder.

Mr. BINDER. Thank you.

Mr. EDMONDSON. Are there any other railroad representatives here that we did not note for the record, or who would like to supplement in any way Mr. Binder's remarks?

The Chair notes there is no response to that question.

I would like to note also the presence of Mr. George Brown of the Sheffield Steel Co. in McAlester, who has been present throughout the day.

Mr. Brown, did you have anything you wish to say for the record?

STATEMENT OF GEORGE BROWN, SHEFFIELD STEEL CO., McALESTER, OKLA.

Mr. BROWN. I have one observation to make which might be of interest to you men which has not been brought out.

Practically 80 percent of the coal in Oklahoma is owned by the Federal Government. I do not know whether you knew that or not.

Mr. EDMONDSON. You are speaking of the Choctaw and Chickasaw?

Mr. BROWN. The Choctaw and Chickasaw, yes, sir. The Government spent $10 million for it, and ought to have a vital interest in the utilization of it.

Mr. EDMONDSON. I could not agree with you more in that regard.

Mr. BROWN. I think that is all I have to say.

Mr. CHENOWETH. May I ask a question?

Mr. EDMONDSON. Yes.

Mr. CHENOWETH. The companies that operate the mines obtain leases from the Federal Government?

Mr. BROWN. Some of it has been sold. The greater part of it is under lease.

Mr. CHENOWETH. What is the type of lease that industry gets—a long-term lease on a royalty basis?

Mr. BROWN. On segregated coal bought from the Indians, under the acts of Congress, an individual can lease 5,210 acres of that land on proper showing. There has been some question about whether that should be enlarged or not to equalize with the 1,560 acres that they are allowed to lease in other fields that are owned by the Government. But those leases run for a number of years. I cannot recall just exactly what they are, because they are different in some cases.

Mr. CHENOWETH. What was the statement you made about the percentage of federally owned coal lands?

Mr. BROWN. About 80 percent of the available coal reserves in the State are owned by the Government.

Mr. CHENOWETH. Are you talking about the coal mines actually being operated, or the fields that have not been explored yet?

Mr. BROWN. The coal that has not been touched yet.

Mr. CHENOWETH. You are not talking about the actual coal mining areas now. These are all privately owned, are they?

Mr. BROWN. Practically all the coal in eastern Oklahoma is on Federal leases.

Mr. CHENOWETH. The coal right here at Henryetta?

Mr. BROWN. That is private land.

Mr. CHENOWETH. How about McAlester?

Mr. BROWN. McAlester is under segregation. Practically all of the available coal is leased under long-time regulations. Some of it has been sold to private individuals in years past. But all of this crop coal that we are speaking of to run out in 10 years has been leased up. I do not think there is a foot of crop coal in eastern Oklahoma that has not been leased by either of those five concerns that have been mentioned—Kansas City Light & Power, Geneva Utah Construction Co., Colorado Fuel & Iron Corp., United States Steel, and Sheffield & Lone Star.

Mr. CHENOWETH. They have leased it although they may not be operating it; is that it?

Mr. BROWN. I would say that they are under process of being operated, and will be as far as the outcrops are concerned in the next year or two.

Mr. CHENOWETH. They intend to prosecute the leases and really mine the coal; is that it?

Mr. BROWN. At least——

Mr. CHENOWETH. Or just take the leases to protect themselves?

Mr. BROWN. The stripping will go on, and after the stripping is over that is something else.

Mr. CHENOWETH. These are all strip mines you are talking about?

Mr. BROWN. Mostly.

Mr. CHENOWETH. I see. I think that is all.

Mr. BROWN. Sheffied, for whom I work, have got a lot of deep coal spoken for. When they will start operations I do not know.

Mr. CHENOWETH. Where is that coal?

Mr. BROWN. McAlester.

Mr. CHENOWETH. That is deep coal?

Mr. BROWN. Yes. It runs from 800 to 2,000 feet deep.

Mr. EDMONDSON. I think for the record it might be useful to note that the Choctaw-Chickasaw coal, of which Mr. Brown has made mention, came into the Government's possession by virtue of a bill sponsored by my predecessor in the House of Representatives, the Honorable W. G. Stigler, who introduced and secured the passage of a bill whereby the Federal Government purchased from the Choctaw and Chickasaw Tribes their reserved mineral interests which they held as tribes in a substantial portion of eastern Oklahoma, which had been allotted to those tribes. While the surface of that land had been individually allotted to those Indians, the mineral rights, just as in the case of the mineral rights to the Osage Tribe in Osage County, had been reserved to the tribe as a group.

The Congress and the Government concluded that the only way to get a distribution of that interest to the Indians was to have the entire tribal property purchased by the Government in order to really make possible an exploitation of the coal, I believe. I think

that was very much in the mind of the Government in supporting the passage of this law.

Mr. BROWN. That is right.

Mr. EDMONDSON. I do not know how well it has worked out in practice, but I think that was the intent.

Mr. BROWN. My experience has been that the relations of the Government to these lessees has been very good. All of that coal has been leased out. There are several thousand acres of surface also involved in this, which will be sold sometime in the near future. The Bureau of Land Management is now appraising that and going to put that up for sale.

But the Government ought to have an interest in any proposed research for the development of this coal which originally covered about 385,000 acres.

Mr. EDMONDSON. I would agree with you thoroughly on that.

I would also like to note the presence of Mr. M. A. Berman, I believe, from Henryetta.

Mr. PUTERBAUGH. Mr. Edmondson, I think you made one statement you would like to have corrected on the surface of the segregated coal districts. They segregated both the surface and the coal from allotment, and then later the coal was sold, but none of the surface of the segregated coal was allotted.

Mr. EDMONDSON. Mr. Puterbaugh, I am quite satisfied that you are more familiar with the facts on the coal lands involved than I am. My own information on it was that a substantial amount of the Choctaw-Chickasaw land was individually allotted, while mineral rights to the entirety were retained in the tribe. If there was some known coal land on which the surface also was reserved, I will stand corrected. Is that the information?

Mr. PUTERBAUGH. I think I am correct—and Mr. Brown, I think will confirm it—in my understanding that all of the Indian known coal lands were mapped off, and then the communities over there realized that that would tie up a lot of surface unnecessarily for many years to come, and none of that surface over the coal was allotted.

Mr. EDMONDSON. Over the known coal lands?

Mr. PUTERBAUGH. Over the known coal. That is now being sold by the Government for the tribe.

Mr. EDMONDSON. I think we are in agreement on the basic facts. I appreciate your comment on it, too, sir.

Mr. BROWN. To put it simply, the coal rights come first on the segregation. In other words, the man who owns the coal or leases the coal has prior rights on the surface of the segregated coal areas.

Mr. EDMONDSON. Of the known coal areas?

Mr. BROWN. Of the known segregated areas.

Mr. EDMONDSON. Yes.

We have two gentlemen here from Henryetta who have been patiently waiting throughout the day. I would like to call on them together, because they are going to discuss an aspect of this community approach to the coal problem that I think will be most interesting to this committee.

Is Mr. John Cole still with us, and Mr. Buck Perry?

Mr. COLE. Yes; we are.

Mr. EDMONDSON. Do you have any other members of your group with you here that would like to come forward and be identified at this time?

Mr. PERRY. Not that I know of, sir.

Mr. EDMONDSON. All right, sir. Would you both take chairs then please?

Mr. Perry was one of the authors of a letter to me several weeks ago reporting on the coal situation in this area, which reinforced my desires of long standing to come into this committee and to look into this problem.

Mr. Cole, did you sign that letter?

STATEMENTS OF BUCK PERRY AND JOHN COLE, HENRYETTA, OKLA.

Mr. COLE. No; I did not.

Mr. EDMONDSON. For the record, who were the signers of that with you, Buck?

Mr. PERRY. Tony Drisenew.

Mr. EDMONDSON. Tony is in the group in the back. Who was the other one?

Mr. PERRY. Mr. Bob Young and Charlie South.

Mr. EDMONDSON. Is Mr. Young present, or Mr. South?

(No response.)

Mr. EDMONDSON. I want to say I appreciated that communication from you gentlemen, and hope it results in something helpful.

Mr. PERRY. Thank you.

Mr. EDMONDSON. Buck is an old friend of mine, but I understand he wants to backstop for John and let my friend John do the talking here. So, John, you lead off and tell them just what this community effort was in the direction of doing something about this problem.

Mr. COLE. I do not know that I can add too much to what Mr. Gene Taylor said.

I went to New York to the AIME meeting in 1952. Mr. Lesher had a paper there that I was very much interested in. I met him, and suggested that he come down here, or asked if he would come down here and make a survey. He said he would be glad to.

I came back, and we organized a committee and raised the money. I do not remember how much, but sufficient.

Mr. EDMONDSON. How did you raise that money, now?

Mr. COLE. By solicitation. The bank in Okmulgee and the bank in Henryetta, the United Mine Workers and the operators, and we raised enough money to bring Mr. Lesher here.

We had this survey made, and then Mr. Lesher was here sometime, and we had a meeting with the smelters, all of whom were represented. I have a list of them here, but I think Gene mentioned them all for the record.

We met in Tulsa at a dinner and went into it thoroughly. Mr. Lesher made a talk. They decided they could not underwrite this thing and we, of course, had no money to go into the experimental stage of it. That is just about the situation.

But I think Mr. Lesher is a very able man, and I think he gave us a good report. I think the market for char was present, and is even present today. That is the way I feel about it.

Mr. EDMONDSON. Did you feel that what you did represented pretty much a maximum community effort on this thing at the time that you did it?

Mr. COLE. I feel it was at that time about all we could do; yes, sir.

Mr. EDMONDSON. Buck, do you have anything you would like to add to what Mr. Cole has said?

Mr. PERRY. No; nothing other than I hope you appreciate the cooperation here between the miners and businessmen and operators, and what have you. Just as John said, we took up a collection for this money, and believe it or not, they trusted me with the funds. I have a little left in the bank yet, on our research fund.

Mr. EDMONDSON. I think that it represents a real local effort to do something in terms of research on this problem. I just wanted it to be a matter of record in the committee that there had been a strong local effort along that line.

Mr. Metcalf, do you have any questions of these witnesses?

Mr. METCALF. No.

Mr. EDMONDSON. Mr. Saylor.

Mr. SAYLOR. No questions. I would just like to commend these two witnesses for having the interest not only in their own jobs, but in their community, so that when they have attended meetings, and heard something they have been alert enough to realize the potentials and come back and bring it to their community, and sell the bill of goods. I think it is very commendable, Mr. Cole, and I would like to congratulate you for it.

Mr. Perry, after taking a look at you, I do not know any question about the people trusting you. I think you look like pretty honest people to me.

I did not get your connection, Mr. Cole.

Mr. COLE. I am an engineer. I have done work in this field since 1921.

Mr. CHENOWETH. As a surveyor?

Mr. COLE. Yes, sir.

Mr. CHENOWETH. You have the plats?

Mr. COLE. Yes, sir.

Mr. CHENOWETH. You know just where the coal is?

Mr. COLE. That is right.

Mr. CHENOWETH. What did Mr. Lesher do here for this compensation you paid him?

Mr. COLE. Mr. Lesher took samples of our coal, and then he carbonized it back in Pennsylvania, back in Pittsburgh. I do not know where he did it. I do not know where his laboratory is. But then he came back and had this meeting with us in Tulsa. Does that answer your question?

Mr. CHENOWETH. That was in 1952?

Mr. COLE. Yes, sir.

Mr. CHENOWETH. How much time did he spend on this project?

Mr. COLE. He must have spent 2 weeks altogether.

Mr. CHENOWETH. All you wanted was his professional opinion as to what the products could be from this coal?

Mr. COLE. No; he did more than that. He gave us a report on the costs of that, building a pilot plant to produce a product for the use of the smelters, so they could try it.

In other words, it was not being used in any of the smelters, and we had to build a plant to test with. Eagle Picher agreed to do that. He gave the figures on that cost, and things of that sort.

Mr. CHENOWETH. That was in 1952, you say?

Mr. COLE. It was in 1952. It would not be of much value now, since things are a lot higher, but he gave an estimate of the cost at that time.

Mr. CHENOWETH. You are confirming then what Mr. Taylor told us?

Mr. COLE. That is right.

Mr. CHENOWETH. All of you really worked together in this community enterprise and tried to find some new market for coal?

Mr. COLE. That is right.

Mr. CHENOWETH. Some new use for coal, which is the task our committee is engaged in.

Mr. COLE. Yes, sir.

Mr. CHENOWETH. We are trying also to see if we can help in finding new uses so this coal can be put to other uses, and production increased and men put to work, economies of the communities revived.

Mr. COLE. Yes.

Mr. CHENOWETH. There is nothing peculiar to this area, I think, over and above what we found in many other areas of the country. It is the same situation duplicated. It is obvious we have to find some new uses, some new market for coal, or there will not be any men working and the mines will be closed, as here. I have that situation in my own district, and I think it applies to every coal district in the country.

I think that is all, Mr. Chairman.

Mr. EDMONDSON. Thank you very much, Mr. Cole and Mr. Perry.

Are there any further persons desiring to be witnesses in the room at this moment?

(No response.)

Mr. METCALF. Mr. Chairman, if there are no further witnesses, I think the record should show my gratitude—and I speak for others of the committee, although they may follow me—to you for bringing us down here to this community and permitting the members of the committee to hear what this community has tried to do for itself in carrying out additional research in trying to meet this problem of a sick industry, just by reason of technological changes, as it had to compete with other fuels. I am glad to be in a community whose witnesses today have come before us and demonstrated the need for the kind of research that this committee was set up to study.

I am grateful to you and to your constituents for confirming the evidence that we have found in other areas, and also for restoring my faith in the initiative and ability of people in these depressed areas to work for themselves, and to work in cooperation with the State government, the Federal Government, and the cooperation of management and labor alike to work out a solution to an American problem.

Mr. EDMONDSON. Thank you, very much.

Mr. SAYLOR. I would like to concur, Mr. Chairman, in the statement that has just been made. It has been a pleasure to be here, and I commend you for arranging the appearance of the witnesses that were here. I think they have contributed materially to the work that this committee is doing.

Mr. EDMONDSON. Thank you.

Mr. SAYLOR. It is a pleasure to be here.

Mr. CHENOWETH. This has been a very interesting hearing, very interesting. I think it has been as informative as any we have had, and the committee has received some very valuable information.

Mr. EDMONDSON. I want to thank the members of the committee for those remarks, and for the sympathy which they have expressed for our area.

Mr. Saylor was not kidding when he said that he had flown half the night last night. He did it. But Mr. Metcalf, on my left, flew all night long to get here, and it is something for which I am very grateful.

I want to express my personal appreciation to all of the witnesses who have come to this hearing, some of them from a very considerable distance.

I want to express my appreciation to the citizens of this community who have assisted us so materially by providing transportation, by providing a very fine place in which to hold these hearings, and by being most hospitable to us.

I hope that we can justify the confidence that you have placed in us, and the hand of friendship which you have extended to us.

I want to express my appreciation especially to the officers of the chamber of commerce here who have been most helpful in arranging for witnesses and in taking care of the details of this hearing.

If there is no further evidence to be offered by anyone——

Mr. WELLS. Just as a citizen of Henryetta who formerly used to be in the coal business, I think it is proper that we thank you for the honor you have put on our little community by meeting with us. We want to tell you we are very gratified by having you down here, and for your courtesy and the time you have spent listening to all of the testimony that we have presented. We hope that sometime you may come down again.

Mr. EDMONDSON. Thank you very much, Mr. Wells. I appreciate that.

The subcommittee stands adjourned until we reconvene in Pueblo, Colo., Monday morning at 9:30.

(Whereupon, at 4:50 p. m., the subcommittee adjourned, to reconvene at 9:30 a. m., Monday, March 11, in Pueblo, Colo.)

COAL

MONDAY, MARCH 11, 1957

HOUSE OF REPRESENTATIVES,
SPECIAL SUBCOMMITTEE ON COAL RESEARCH OF THE
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
Pueblo, Colo.

The special subcommittee met, pursuant to notice, at 10:00 a. m., in the Federal Building, Hon. Ed Edmondson (chairman of the special subcommittee) presiding.

Mr. EDMONDSON. The Subcommittee on Coal Research of the House Committee on Interior and Insular Affairs will come to order.

It is a pleasure to be in Colorado, to be in the district of our distinguished colleague, Hon. Edgar Chenoweth, and to be in the State that sends to Washington so many fine Representatives in Congress.

I want to express the regrets of an outstanding member of this subcommittee, the Honorable Wayne Aspinall. He had planned to be with us until almost the last minute before departure, but was unable to attend these hearings for reasons beyond his own control.

I have before me a communication from the Chief Executive of the State of Colorado, and the Chief Executive of the State of Wyoming.

The letter from the Honorable Steve McNichols, dated March 8, 1957, reads as follows:

Hon. ED EDMONDSON,
United States Representative, Coal Research Subcommittee of the House, Committee on Interior and Insular Affairs, Washington, D. C.

DEAR REPRESENTATIVE EDMONDSON: In compliance with your letter of March 4, pertaining to the hearing to be held at Pueblo, Colo., on March 11, I should like to place the attached statement in the record of the hearing.

With kindest regards and best wishes,

Sincerely,

STEVE MCNICHOLS.

If there is no objection, the brief statement of the Governor will be made a part of the record at this point. We are very pleased to have that statement for the committee.

(The statement follows:)

STATEMENT OF STEVE MCNICHOLS, GOVERNOR OF COLORADO

Coal reserves in Colorado total more than 100 billion tons according to United States Geological Survey reports. These reserves, which are principally bituminous and subbituminous, are greater than those in most of the States in the United States, especially in reserves of higher rank coals, and represent 4 percent of the total world reserve.

Major deposits are found in the following areas: The Denver area with reserves of 3,662,000,000; the Canon City area with reserve of 466 million tons; the Raton Mesa area in Huerfano and Las Animas Counties with 12,167,000,000 tons; the

North Park area in Jackson and Grand Counties with 2,074,000,000 tons; the Yampa area in Moffat, Rio Blanco, and Routt Counties, with 25,541,000,000 tons: the Uinta area in Rio Blanco, Garfield, Mesa, Delta, Gunninson and Pitkin Counties, with 52,510,000,000 tons; the South Parkfield in Park County, with 20 million tons; the Tongue Mesa field, near Montrose, with 537 million tons; and the San Juan area in Montezuma, La Plata, and Archuleta Counties with 3,431,000,000 tons.

Included in Colorado reserves there are more than 1 billion tons of anthracite coal in Routt and Gunnison Counties and a large reserve of coking coal in Garfield, Pitkin, Gunnison, Las Animas and La Plata Counties.

Advantages in connection with the reserves of coal in Colorado are that deposits are found in many parts of the State; transportation is readily available to all of these deposits; and, all of them are easily and cheaply mined.

In times of crisis the demand for coal increases greatly. During World War II Colorado produced 9 million tons a year. At present the production in the State is about 3 million tons a year. It is difficult to shift into high gear in times of emergency, when in the meantime, the machinery of production has been stuck in low gear.

Many factors combined to curtail production of coal temporarily during the years preceding 1955. Major factors were that railroads converted to diesel engines and residential and public buildings converted to gas heat. As a result many coal mines were closed down. In some areas where mining was continued, the work year was reduced to a few months. Many of the men who grew up in the coal-mining business had to take other work and adopt other trades. Many moved away from coal-mining areas in order to be able to make a living and support their families. This has been true in Colorado and has affected the economy of several of our coal-mining areas.

At present, about 400 million tons of coal is depleted from eastern fields each year and the supply in these fields is dwindling and mining operations are becoming increasingly difficult and expensive. It is probable that in the comparatively near future users of coal will have to turn to our Western States for their supplies.

Coal is still the most economical source of electrical energy. It is conservatively estimated that the available coal in the State would produce enough electrical energy at the present rate of consumption to supply the United States for at least 300 years—some less conservative estimates range up to 1,500 years.

In recent years certain developments have begun to take place. It is interesting to note that the National Coal Association, certain United States railroads, and the Canadian Pacific Railroad are experimenting with the use of powdered coal for power and reports are that it will in time supersede the use of diesel power for locomotives, because it is cheaper and gives more flexibility of operation.

But the most important development, insofar as coal is concerned, is the discovery of chemical derivatives which are used in medicines, perfumes, dyes, fertilizers, plastics, etc. It is estimated that the demand for these chemicals is increasing presently at the rate of about 30 percent per year. These chemicals from coal are at present being produced almost entirely as byproducts of the coking of coal in steel plants, and the amount available is not nearly enough to keep up with the demand.

There is a great need for research to determine better and more economical methods of distillation processing, discovery of new chemical products, and also for the extraction of gasoline and gas, which are already on the verge of being financially feasible.

A considerable amount of research has been done toward perfecting a distillation process for the production of chemicals from coal. One of our great corporations has already spent nearly $30 million on research in this field. But a great deal more research is needed. The results of such research could be so beneficial in the discovery of new products and in the supplying of chemicals already greatly needed, and in the tremendous economic boost a renaissance in the coal industry and in the manufacturing of byproducts from coal would give to the State, and the Nation, that there is a strong justification for the Government to subsidize research and production. The cost of a distillation plant at present is estimated to be from $30 to $50 million. This greatly limits the possibility of private enterprise establishing such plants.

It is reported that the residue from one method of distillation—a substance called char—is a superfuel for the generation of electricity and has already been used very successfully in Texas and other States. This means that not only

is it possible to get chemicals from coal, but we can still have a fuel left over for producing energy.

There are compelling reasons for the redevelopment of the coal industry in Colorado. It would not only contribute to economic progress and stabilization in the State, by increasing investment and employment opportunities, but it would also furnish much needed chemical products, as well as energy.

This whole problem of research in, and production of, coal and coal products is only a part of our tremendous statewide problem of conservation and utilization of all our natural resources and helps to point up strongly the need for a coordinated program through a State department of natural resources.

The general assembly has created a Department of Natural Resources to integrate the activities of 18 agencies which for many years have been charged separately with various aspects of conservation, utilization and development of our natural resources. This department will be keenly interested in cooperating with the Federal Government and with other States in the redevelopment of coal mining and related industries.

Mr. EDMONDSON. I also have a letter from the Honorable Millard Simpson, the Governor of the State of Wyoming, dated March 8, 1957. This letter reads as follows:

Hon. ED EDMONDSON,
Chairman, Special Subcommittee on Coal Research,
Pueblo, Colo.

DEAR MR. EDMONDSON: This letter will serve as an introduction for the Wyoming representatives to the special House subcommittee hearing which is investigating the problems in the Nation's coal industry. The bearer of this communication is Bob Stelling who is the secretary of our Wyoming Natural Resource Board. The Natural Resource Board is a duly authorized and constituted agency of the State of Wyoming. The group accompanying him are the persons most familiar with the coal industry in our State.

May I take this opportunity to express my best wishes for a successful meeting.

With best regards,
Sincerely yours,

MILLARD L. SIMPSON, *Governor.*

If there are representatives here of the State of New Mexico—we have had some word that they would be present—we would be pleased to have them identify themselves, and they will be accorded a place on the list of witnesses. We have a rather large list of witnesses from several States, and we are going to endeavor to hear every witness before we close this hearing this evening.

We will appreciate the cooperation of the witnesses who have prepared statements in making available copies of their prepared statements at the earliest possible moment, supplying them to Mr. Soule, of the committee staff.

We will also appreciate the cooperation of the witnesses present—and I am sure it will be given to us—in doing their best to avoid duplication of material that has already been submitted by prior witnesses.

If you have a prepared statement of some length, and find that it has already been presented in part—that is, its material by some previous witness—you may ask that the statement be introduced in the record, and I am sure that the courtesy will be extended by the committee. You may then summarize the written statement, if you care to do so, in your own words, and avoid duplication.

We have a considerable group of witnesses here to be heard, and since we are in the home district of the gentleman from Colorado, Mr. Chenoweth, we are going to ask Mr. Chenoweth to present the witnesses who are present.

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I do not know whether the judge will want to run through the list he has to confirm the presence of all of them or not. If he does so, and there are any present who wish to testify whose names are not read, please make yourself known at once to the staff or to some member of the committee, as we definitely want to hear everyone.

I will turn the matter now of presenting these witnesses over to our good friend and colleague from Trinidad, Judge Chenoweth.

Will you call the first witness, Judge?

Mr. CHENOWETH. Thank you, Mr. Chairman.

I want to express my appreciation for your courtesy in bringing this committee to Pueblo.

I have been happy to serve on this subcommittee under your very splendid leadership, and we have held some very interesting hearings in other States. I am sure this hearing today will give the subcommittee a good picture of the coal-mining industry in Colorado.

I was very anxious to have the committee come to Pueblo and southern Colorado. This coal area has suffered disastrously in recent years due to the decline of the coal-mining industry. We have some people here today who can tell us about these conditions and perhaps offer suggestions as to what can be done to stimulate the entire coal industry, not only in Colorado but in other coal States.

I personally want to welcome the representatives from Wyoming and Utah, and hope there will be some from New Mexico before the hearing is over.

As the chairman has stated, we have a large number of witnesses. Those who have not turned in their names should give them during the noon hour to Mr. Soule of the committee staff. I think we have most of the names, but we do not want to overlook anyone.

We will call as our first witness, the Honorable Sam Taylor, the majority leader of the Colorado State Senate, who lives in Walsenburg.

Senator Taylor has been engaged in the coal mining business himself a number of years, and is very much interested in doing what he can to assist the coal-mining industry.

I suspect you have some rather pressing duties in Denver in the legislature today, and I think we will hear from you first, and give you an opportunity to get back. We are delighted to have you here.

Mr. EDMONDSON. Senator Taylor, we are very pleased to have you with us.

STATEMENT OF SAM P. TAYLOR, WALSENBURG, COLO.

Mr. TAYLOR. My name is Sam P. Taylor of Walsenburg, Colo. I am here this morning representing the Colorado Legislative Synthetic Fuels Committee; also representing southern Colorado, the coal areas of southern Colorado, particularly Fremont, Huerfano, and Las Animas Counties.

It is difficult for a committee like this to really find out what has happened to our economy in southern Colorado without having an opportunity to actually make a tour of what were the former coal fields of southern Colorado.

If you good people would have an opportunity to go up and down the many canyons to the west and south of us, where formerly we had thriving large coal-mining communities, you would find now that all

that is left is just foundations. From the air it would now appear that it was left after a battle, because all that is left are dumps and foundations.

I am naturally particularly interested in my own home county, Huerfano County. At one time there we had 4,000 coal miners in the county. Today we have 40. You can see what the effect of the decline in the coal industry has been to our community.

Since the war, since the decline of the coal business, we have lost approximately half of our population in that county. That is true for all of the counties of southern Colorado. That is true of Las Animas County, and Fremont County. It is true of all of southern Colorado.

Las Animas County has suffered the same economic decline. They have lost approximately half of their people, too.

Fremont County has the same situation as Huerfano County.

We have the coal reserves in this section of the State. Like most coal-mining communities, we do not have the capital to develop these coal properties. We need, of course, Government aid.

I have been a firm supporter of the Marshall plan because I think the Marshall plan has done considerable good for the economy of the world. But I am also a firm believer that we need a Marshall plan for America too, particularly southern Colorado.

I might make a further statement.

I have been a member of the Colorado Legislative Synthetic Fuels Committee for a good many years. I would like to have an opportunity to submit to this committee the reports we have submitted over the past 10 years. I do not have them here with me, but I would like to send them to your committee.

Mr. EDMONDSON. We would be very pleased to receive those reports, and they will be inserted in the record, or in the file, depending upon whether or not they duplicate materials supplied by other witnesses in the course of this hearing.

Mr. TAYLOR. I might make a further observation to the committee while I am here.

It would seem to me that we need some move on the part of Congress that would help distressed coal-mining areas throughout the country. The situation in Colorado has been—for instance, we have no plants really south of Pueblo. You can take the whole area south of Pueblo, the Arkansas Valley and the San Luis Valley, and there are practically no Government installations of any kind. It would appear to me that something should be done by Congress to compel some of these defense industries who are moving out here to Colorado—it would seem to me, being a member of the legislature, and knowing that pressure can be put on sometimes, it would be a good idea to get some of these plants in this section of the State.

After all, we do not need plants that employ thousands of men. Take, for instance, an area like the Walsenburg-Trinidad—a plant that would employ a thousand men would help the economy in that part of the State.

The thing that impresses me is that all through the years, the defense industries and Government installations have all gone to Denver, and it does not make sense to me to have those types of industries centralized right in the heart of the population of Colorado.

You have the Rocky Flats project, which is a Government project, in Denver, employing I do not know how many. Maybe 2,000 people. A plant like that anywhere in southern Colorado between Pueblo and Canyon City, or between Pueblo and Trinidad and Walsenburg, or Aguilar will help the economy.

You have the Glenn Martin plant that is going into Denver now, which is essentially a defense industry. That is being placed in Denver, too.

We not only need help to take advantage of our coal resources, but we need help economically that way, too.

I think that is about all I have to say, Mr. Chairman.

I want to take this opportunity of thanking you for extending me this courtesy of appearing first. We have three administrative bills laid over until the afternoon session. We are having a tough time to get them by, and I have got to be there. My vote is needed.

Mr. EDMONSON. We are very pleased to have you. I understand you are the majority leader of the State senate.

Mr. TAYLOR. That is correct.

Mr. EDMONDSON. I can understand, after listening to you, why that is so. We are certainly pleased to have you here. Thank you very much.

Mr. TAYLOR. Thank you.

Mr. EDMONDSON. Are there any questions?

Mr. METCALF. No questions.

Mr. EDMONDSON. Mr. Dawson?

Mr. DAWSON. No questions.

Mr. EDMONDSON. Mr. Saylor?

Mr. SAYLOR. Senator, I would like to congratulate you on your statement. I would just like to ask a few questions, because I think you have pointed up some very important things, and I would like to get a little more information on them.

I think you made the statement that originally there were 4,000 miners in your home county, and now there are 40. Is that correct?

Mr. TAYLOR. That is correct.

Mr. SAYLOR. Could you tell us about what year you had 4,000 miners?

Mr. TAYLOR. I would say that was probably around the peak days, perhaps around 1913 and 1917. Mr. Allen, our chief inspector of coal mines, would have that record.

Mr. SAYLOR. Has the decline been steady over all of these years, or has it had its peaks and valleys, as we have had in other areas?

Mr. TAYLOR. Of course, the decline in the coal industry, probably a little different in our section than in other sections of the country, really began in the early 30's.

In our section of the State I think at one time, the Colorado Fuel and Iron Co., who is represented here, had 29 big coal mines, employing thousands of people. During the early 30's, the beginning of the depression, of course the coal mines began to close down because it was not economically feasible.

In our section of the State we do have a water problem in our mines. In the operation of a coal mine water is no problem if the mine is working and producing; and during the depression we worked 1 day a week, and it got to where it economically was not sound to mine coal in these mines.

Mr. SAYLOR. You have just 1 mine working now that has 40 men working in your home county?

Mr. TAYLOR. We have several small mines. You take from now on until the first part of September, there probably will not be 40 men working. There are several of these small mines.

Mr. SAYLOR. You also made the statement, Senator, that approximately one-half of the population of your county has been lost. Have they moved out of the State or moved to other places in the State?

Mr. TAYLOR. They have gone out of the State, to other parts of the State, both.

But Walsenburg is no different than any other community. We have a rather home loyalty in Walsenburg. If we had something there that would employ people, I would say that 90 percent of the people who have left Walsenburg would be back at Walsenburg, would leave whatever job they have and come back home.

Mr. SAYLOR. Then you also made the statement that as seen from the air, some of these mining communities would show up as only dump piles and foundations. Have the buildings themselves, the homes, been torn down?

Mr. TAYLOR. Oh, yes. All the coal camps have been moved and sold. With modern transportation, the camps themselves are no longer necessary because people can live in the city, the county seat, and travel to any section of the county.

Mr. SAYLOR. I believe that is all.

Senator, I know I am looking forward to the reports you are going to file on synthetic fuels. It is a pleasure to have you here as a witness.

Mr. TAYLOR. Thank you very much.

Mr. EDMONDSON. Mr. Chenoweth.

Mr. CHENOWETH. Would you want to take just a minute and tell the committee about the Synthetic Fuels Committee of the Colorado State Legislature? Is the committee still in existence?

Mr. TAYLOR. Yes. A number of years ago I introduced a resolution to establish the Colorado Legislative Synthetic Fuels Committee. We have done a lot of work. We traveled all over the country, and we spent quite some time in Washington several years ago, and in New York.

Our primary purpose was to try to arouse interest among people who might be interested in coal utilization to come out to Colorado. Walsenburg especially has been contacting a number of firms, trying to get a low-temperature coal-carbonization plant there.

We do feel, in Colorado, that we have tremendous coal reserves. We have worked along that line. We have made considerable studies. We do have some fine reports that we would like to submit to your committee.

Mr. CHENOWETH. Thank you, Sam. We will be glad to get that.

Mr. SAYLOR. I have one other thing, Mr. Chairman.

Mr. EDMONDSON. Mr. Saylor.

Mr. SAYLOR. Senator, has the State of Colorado, over the years, appropriated money through its legislature for this research program in synthetic fuels?

Mr. TAYLOR. Yes. It has not been very much. It has been enough to pay the expenses of the committee to have hearings. We have made

a pretty thorough study of the Colorado coal reserves. The State itself has not spent as much money as it should, either.

Mr. CHENOWETH. How much has been appropriated, Sam?

Mr. TAYLOR. We usually appropriate not over $2,500 each session.

Mr. EDMONDSON. In that regard, Senator, your school of mines carries on quite a few research projects in this field, though, does it not?

Mr. TAYLOR. Yes.

Mr. EDMONDSON. And that is a State-supported institution?

Mr. TAYLOR. Yes, but I do not think we have ever specifically appropriated money for this specific purpose to that. It is part of the overall research program.

Mr. EDMONDSON. I think the school of mines has witnesses here to be heard, and we will go into that later. We are very pleased to have had you before the committee, and appreciate very much your taking time from your own busy legislative schedule to come up to Pueblo and appear before the committee. We wish you lots of luck with those bills.

Mr. TAYLOR. Thank you very much.

Mr. EDMONDSON. Call the next witness.

Mr. CHENOWETH. I believe we will call as our next witness Mr. Robert Williams, who is chief of the fuel division of the Colorado Fuel & Iron Corp. I think he can give this committee some very interesting and valuable, though perhaps not encouraging, information about what has happened to the coal-mining industry in southern Colorado.

Mr. EDMONDSON. Mr. Williams, we are pleased to have you before the committee.

STATEMENT OF ROBERT WILLIAMS, CHIEF, FUEL DIVISION, COLORADO FUEL & IRON CORP., PUEBLO, COLO.

Mr. WILLIAMS. Mr. Chairman and members of the committee, the Colorado Fuel & Iron Corp. had its origin way back in 1872 when coal properties were developed in Fremont County, Colo. In 1876 coal properties were developed in Las Animas and Fremont Counties, and the first beehive coke was manufactured near Trinidad, Colo., in 1878. Construction of the Minnequa steel plant was begun in 1880, and the first steel was made in 1881. At one time, the Colorado Fuel & Iron Corp. was the largest producer of coal west of the Mississippi River. Coal was sold in every State from the Mississippi River to the coast. It owned and operated at one time about 35 coal mines, with a total daily capacity of around 25,000 tons of coal, of which a large portion was coked in the company's 2,683 coke ovens.

At the beginning of the century, the Colorado Fuel & Iron Corp. produced as much as 60 percent of the coal mined in the State of Colorado. During the period of the First World War, the Colorado Fuel & Iron Corp. produced about one-third of the coal produced in Colorado. The maximum coal production in the State of Colorado was in 1918 when 12,658,000 tons were mined. This compares with the present production of around 3½ million tons per year.

The Colorado Fuel & Iron Corp.'s annual coal production ran around the 4 million figure from 1902 to 1920 when a gradual decline

began to around 1 million tons per year of coal, all captive, for the company's byproduct coke ovens in Pueblo, Colo., and now produced from two mines.

The last domestic-commercial coal mine was closed in 1953. Most of the domestic coal business was lost to fuel oil and natural gas, and the market for railroad-engine coal was just about disappearing with the completion of the transition to diesel power.

The following tabulation shows the outside sales of coal by the Colorado Fuel & Iron Corp. for certain years from 1920 to date.

Year	Total production	Outside sales	Year	Total production	Outside sales
1920	4,151,762	2,300,000	1950	951,854	152,221
1930	1,829,565	1,125,172	1956	983,147	64
1940	1,504,034	535,100			

COAL RESEARCH AT THE COLORADO FUEL & IRON CORP.

1. Coal research, as conducted at our Pueblo steel plant, is concerned primarily with those aspects of the subject concerned with coal preparation and carbonization, and the related production of coal chemicals. In the Bureau of Mines Information Circular 7754 are listed 209 specific subjects recommended for research. Of these, we are vitally interested in 38 and actively engaged in work on 29 others. Considering only the second of these groups, work is now underway at several locations in this country and abroad, including the Denver station of the Bureau of Mines, the French Société pour la Valorisation des Combustibles, and at several low-temperature carbonization pilot plants. The chief laboratory at which this work is in progress is that established at the coke plant of our corporation in Pueblo.

2. Listing from the above-mentioned information circular the subjects on which work is now in progress—and using the numbers as given in the listings in that circular—we have the following:

Items 47 to 49: Work planned to secure improved coal washing jig efficiencies.

Items 54 and 55: Use of froth flotation to secure separation of impurities from very fine coal.

Item 67: Work on salvaging fine coal from washery water using cyclone separators.

Item 68: Determination of means of utilizing coal washery waste material.

Items 73, 74, 76: Study of means of storing coal to prevent firing in pile. Work done in cooperation with Bureau of Mines. (Work completed.)

Item 86: Investigation of use of char as boiler fuel.

Item 91: Determine the economic limit of coal washing as based on end use of coal or coke. (Work completed.)

Item 133: Production of activated carbon from coal. (Work completed.)

Item 150: Study of petrographic constituents of coal as affecting coking properties.

Item 151: Study of equipment for rapid moisture determination of coal.

Item 152: Study of advantages of separate crushing of the individual coals in a blend of coking coals.

Item 153: Study of effect of blending low-temperature chars with coking coals. This involves determination of the best type of retort in which to make the char.

Item 154: Investigation of pretreatment of coals to improve coke quality.

Item 156: Use of full size or small test ovens to determine coking properties of coals.

Item 157: Study effect of pretreating coal, with and without oxidation.

Item 158: Determine effect of various additives to coal on quality of coke.

Item 159: Develop possibilities of ferrocoke process.

Item 177: Determine best operating conditions for making char for use in coal blends for coke production.

Item 179: Make comprehensive study of nature and composition of low-temperature tar.

Item 201: Introduce simplification of analysis procedure.

Item 202: Apply statistical methods to analysis and process control.

Item 203: Standardize procedures and terminology.

Item 204: Study distribution and nature of plant residues.

Item 205: Study the various physical properties of coal.

3. Research possibilities dealing primarily with the various phases of mining that should be investigated:

Item 1: Investigate the formation and development of coal beds and the effects of physical, chemical, and biologic factors (see also 204).

Item 2: Develop new geophysical methods of finding and estimating extent of coal deposits.

Item 3: Map reserves more intensively, including information on variations in quality of coal, with location and on the nature of minerals associated with coal.

Items 4–32, inclusive: Dealing with underground mining methods and equipment, roof control, ventilation, power and lighting, and strip mining.

Items 33–42, inclusive: Covering underground gasification. This might have great possibility at mines which still contain workable coal, but have been abandoned due to unfavorable economic conditions.

4. Why is the Colorado Fuel & Iron Corp. interested in coal research? First, because we are a progressive organization and want to keep abreast of changing conditions and new developments. In fact, we like to be ahead of the procession, and our recent development on the production of di-ammonium phosphate at our coke plant may be cited as an example.

Second, because we wish to maintain high efficiency in our operations and be able to produce the best possible products at the lowest possible costs.

Third, because we see the handwriting on the wall and know that the reserves of petroleum fuel oil and natural gas are definitely

limited, and that before many years, we must secure gaseous and liquid fuels for our steel-mill operations. Colorado has lots of coal—we are of the opinion that this is the best raw material to supply our future fuel needs.

It has been predicted that within 15 or 20 years inadequate supplies of liquid and gaseous fuels will require the coal industry to convert coal into these products, as well as produce chemicals directly from coal instead of through the coking and byproduct process.

In the foregoing declaration, the Colorado Fuel & Iron Corp. has presented some facts relative to our position in coal production and utilization research. We have attempted to keep abreast of modern developments and to initiate new and modified approaches to the more efficient and economical methods. We realize that a single corporation such as ours cannot even hope to scratch the surface of a program as broad as the present one, and it is our sincere opinion that the full coverage of this program can only be achieved by cooperative effort, and the Bureau of Mines is well qualified to lead the way.

We respectfully urge that appropriations be made available to the proper Government agencies for an expansion of the coal-research program.

Mr. EDMONDSON. This is a very interesting statement you have given, Mr. Williams. I am very much interested in these specific research projects you have sponsored in your own company. Could you tell us whether you are today budgeting a specific sum for research and development projects?

Mr. WILLIAMS. We certainly are. We must remain competitive in the industry. We have a budget allowing for research work in the utilization of coal. We are a contributing member of Bituminous Coal Research, which is one of the cosponsors of Information Circular 7754. We are supporting in our own organization through consultants a program at all times.

Mr. EDMONDSON. Mr. Williams, do you support and endorse the recommendations of the National Coal Association with respect to the formation of a Federal Commission to coordinate and expedite the research work on coal?

Mr. WILLIAMS. Yes, sir. We are members of the National Coal Association. The policy of that association has not been officially made a part of the policy of our corporation; but, as a supporting member, I am sure we would recommend it very favorably.

Mr. EDMONDSON. Do you have any questions, Mr. Metcalf?

Mr. METCALF. No questions. Thank you, Mr. Williams, for your statement.

Mr. EDMONDSON. Mr. Saylor?

Mr. SAYLOR. Yes, Mr. Chairman.

Mr. Williams, I am delighted to see from your statement the extensive number of fields in which your company has already conducted some research.

If your company would develop any process in this research field, I would like to ask whether or not they would want to use it exclusively for their own, whether they would want to take out a patent on it, or whether it would be made available to the industry.

Mr. WILLIAMS. I am sure that any of these developments would be made available to the industry.

Mr. SAYLOR. I was interested in your statement on page 5, that you—

see the handwriting on the wall and know that the reserves of petroleum fuel oil and natural gas are definitely limited, and that before many years we must secure gaseous and liquid fuels for our steel-mill operations.

Are you using gas here in your furnaces now?

Mr. WILLIAMS. We are using natural gas and fuel oil in our open-hearth furnaces, in our reheating furnaces throughout the plant. The overall input of energy to the plant, however, is still in the form of coal. Ninety-five percent of the overall energy input to our steel plant is in the form of coal, only 5 percent or less remaining in the form of natural gas or liquid fuel.

Mr. SAYLOR. In that 95 percent, do you include the gas which you take off of your coal yourself in coking processes?

Mr. WILLIAMS. In the processing, the gas from the coke plant and blast furnaces are absorbed in the overall heat requirements of the plant.

Mr. DAWSON. Will the gentleman yield, there?

Mr. SAYLOR. Yes.

Mr. DAWSON. I thought you said you were using natural gas.

Mr. WILLIAMS. We are.

Mr. DAWSON. I assumed that natural gas was gas that came from the fields. Is that correct?

Mr. WILLIAMS. Yes.

Mr. DAWSON. The gentleman from Pennsylvania mentioned that you were using gas from your coal. I am a little confused now.

Mr. WILLIAMS. We have at the Pueblo plant a fully integrated system wherein the coke is carbonized in byproduct ovens. The resultant gaseous materials driven off there are used in reheating furnaces throughout the plant, and for gaseous fuel purposes. Also as a byproduct of the blast furnaces comes a low-value but high-quality gaseous fuel which is utilized primarily under our high-pressure boilers for the generation of electrical energy at the plant.

All of those present process gases can be said to originate in the form of coal. It is carbonized and used in the plant.

Mr. SAYLOR. In other words, Mr. Dawson, what the witness is telling you is that they are using some natural gas but 95 percent of their total fuel, even in gaseous form, comes from coal; is that right?

Mr. WILLIAMS. That is right.

Mr. SAYLOR. They put the coal through various processes, and as the coal goes through its processes, they will take off the gas, they will take off the coal tars, and sell that to some company that is interested in the byproducts, and then they will use the coke in the actual manufacture of their steel.

Mr. WILLIAMS. That is right.

Mr. SAYLOR. I appreciate very much your coming before us, Mr. Williams, and appreciate very much your statement and the interest which is very evident your company is showing in the use of coal.

May I just ask you this: Is it correct that you now operate—how many mines?

Mr. WILLIAMS. We are operating two coal mines.

Mr. SAYLOR. Where are they located?

Mr. WILLIAMS. Las Animas County, the Frederick Mine at Valdez, about 15 miles due west of Trinidad, and the new Allen Mine, approx-

imately 30 miles west of Trinidad. They are in what is generally known as the Raton Coal Basin.

Mr. SAYLOR. Is the coal in that basin high-volatile coal?

Mr. WILLIAMS. It is a high-volatile coking coal for the most part.

Mr. SAYLOR. How many men do you employ at the present time at those two mines?

Mr. WILLIAMS. Between those two operations, we are employing 1,250 coal miners.

Mr. SAYLOR. And your production, as I gather it, last year was just under a million tons?

Mr. WILLIAMS. Yes. It is anticipated to be slightly over a million for 1957.

Mr. SAYLOR. Do you ship any of this coal to any of your plants other than here in Pueblo?

Mr. WILLIAMS. No.

Mr. SAYLOR. That is all.

Mr. EDMONDSON. Mr. Dawson?

Mr. DAWSON. I notice from your statement in 1950 you had a total production of 951,854 tons, with outside sales of 152,221 tons. Yet in 1956, you had substantially the same volume of production, but instead of having 152,000 tons of outside sales, you only had 64 of outside sales. Would you care to comment on that?

Mr. WILLIAMS. Our weight of production at the Pueblo steel plant has increased to the point of demanding additional fuel input. Our domestic sales of fuel have declined just that amount.

Mr. DAWSON. Your volume of outside sales is down to 64 tons?

Mr. WILLIAMS. Yes, sir.

Mr. DAWSON. As compared with 152,000?

Mr. WILLIAMS. Yes, sir.

Mr. DAWSON. Just 6 years ago?

Mr. WILLIAMS. Yes, sir.

Mr. DAWSON. Would you care to tell us how much you are spending in research?

Mr. WILLIAMS. I do not have that particular figure available. It could be supplied, I am sure.

Mr. DAWSON. Do you have a rough estimate? I mean directly on coal research.

Mr. EDMONDSON. If the witness will defer there. For one thing, if you are a participant in the Bituminous Coal Research, Inc., you are contributing a certain amount for each ton of coal, as I understand their operating basis for participation by their membership.

Mr. WILLIAMS. That is right.

Mr. EDMONDSON. So, would it be possible to take your total production and multiply it by the percentage, which we already have in the record, of contribution for each ton of coal, and get a base figure to start with?

Mr. WILLIAMS. It would be very small so far as the overall. It would run six mills, slightly over, which would be some six or seven thousand dollars a year. Our Bituminous Coal Research is another five to seven thousand. Those are relatively small figures, as compared to the staffing of research organizations within our own group. This figure I do not have immediately available.

Mr. DAWSON. I was referring primarily to the research you are doing yourselves other than the amounts you are contributing to the Bituminous Coal Research.

Mr. WILLIAMS. I would have to ask that that figure be prepared.

Mr. DAWSON. Can you furnish it for the record?

Mr. WILLIAMS. We can.

Mr. DAWSON. That is all, Mr. Chairman.

Mr. EDMONDSON. Judge Chenoweth.

Mr. CHENOWETH. Mr. Williams, I want to commend you on a very fine statement. I think you have presented to the committee just what the committee was interested in hearing.

I have been telling the chairman of the committee we used to have in my home county about 30 or 40 coal mines, and now we have 2 left. Of course, all of these mines did not belong to Colorado Fuel & Iron Corp. How many would you say you operated in Las Animas County? Do you recall how many mines?

Mr. WILLIAMS. I can make a guess that there have been 10 of them in Las Animas County.

Mr. CHENOWETH. Those were large mines. I was thinking you had more than that at one time.

Mr. WILLIAMS. We had a great many at one time in Huerfano County and Fremont County.

Mr. CHENOWETH. In our Oklahoma hearing on Saturday, we heard testimony that the Colorado Fuel and Iron Corp. was buying coal in Arkansas and Oklahoma. Tell us about that. That is a particular type of coal you need here?

Mr. WILLIAMS. That is right. A relatively small amount of our total mixture, something in the order of 10 percent, must be of a character of the coals they have there, lower primarily in volatile material.

Mr. CHENOWETH. That coal is not available here, then?

Mr. WILLIAMS. No, sir; it is not. We have no coal in the vicinity of that type.

Mr. CHENOWETH. Mr. Williams, what do you see ahead for the coal mining industry of southern Colorado? After this great decline in production, the loss of these coal mines, and this loss of employment to the men, what do you think is the immediate future for the coal mines in this area?

I might state this: in our hearings in other States, I personally have been very surprised to find a rather optimistic attitude among the coal mining industry for the future, but not the immediate future. There is a feeling that coal is going to come back of necessity. I think the problem of the operators is to be able to stay in business until that time comes. What would your observations be on the future of the industry?

Mr. WILLIAMS. It would be simply a personal observation. Surely there must be some grounds to the belief that coal will return as a source of energy. As we find a decline in the available quantities of natural gas and fuel oils, and our overall requirement for energy increases, certainly I think that will account for an improvement in the production of coal.

Mr. CHENOWETH. Mr. Dawson was asking about your outside sales. Could you tell us whether or not you still have a retail sales force?

Mr. WILLIAMS. We certainly have. Our representative of our sales

organization is here. Of course, it is probably very much smaller, the tonnages handled by that department of our corporation, smaller than it was. But we do, due to the fact that we have had this organization and contacts, continue the retailing, semiwholesaling of coal in the Rocky Mountain district.

Mr. CHENOWETH. You are not selling your own coal?

Mr. WILLIAMS. No, sir.

Mr. CHENOWETH. What coals are you handling?

Mr. WILLIAMS. Routt County coals, largely.

Mr. CHENOWETH. Routt County in northwestern Colorado?

Mr. WILLIAMS. Yes.

Mr. CHENOWETH. But you are still seeking retail business?

Mr. WILLIAMS. We certainly are.

Mr. CHENOWETH. But that business is just not available any more?

Mr. WILLIAMS. That is correct.

Mr. CHENOWETH. We have found in our hearings that coal is divided into two categories, pretty well. The general feeling is the space-heat coal, and coal for domestic purposes is pretty well a thing of the past, at least for the immediate future, but there is a great demand for metallurgical coal. Is that the general picture so far as your company is concerned?

Mr. WILLIAMS. That is true.

Mr. CHENOWETH. You have found that to be true?

Mr. WILLIAMS. Yes. You will notice our substitution of direct sales. The loss of the 152,000 tons in 1950, we have absorbed that loss of domestic sales in improvement of our requirements at the Pueblo plant for metallurgical grade.

Mr. CHENOWETH. I do not want you to go into detail, but I wish you would analyze briefly what you have included, so far as the research work you are doing at the plant on coal. I am sure the committee would be interested in hearing about the work you are doing.

I am disappointed we are not going to have time to get out and see your operations for ourselves. I know the committee is anxious to visit your plant, but our time is limited. We only have one day for this hearing, and that will preclude us from visiting your new Allen mine in Las Animas County.

Mr. WILLIAMS. As we have stated, we are interested in 38 of the 209 specific subjects recommended for research, and have actively engaged in work on 29 others, which are:

Items 47 to 49: Work planned to secure improved coal washing jig efficiencies.

Items 54 and 55: Use of froth flotation to secure separation of im-

Mr. SAYLOR. Mr. Williams, do you use just run-of-mine coal with purities from very fine coal.

the mixture you get from Oklahoma and Arkansas for your coking projects?

Mr. WILLIAMS. It is also washed along with the balance of the mixture. We, unlike some other steel operators, have our washing facilities at the steel plant. We gather the coal there and introduce it to a washing plant here. And all of the coal is first washed in that washer.

Item 67: Work on salvaging fine coal from washery water using cyclone separators.

Item 68: Determination of means of utilizing coal washery waste material.

Items 73, 74, 76: Study of means of storing coal to prevent firing in pile.

This work we have accomplished in cooperation with the Bureau of Mines, and is complete, still in storage and in very satisfactory condition.

Item 86: Investigate use of char as boiler fuel.

Item 91: Determine the economic limit of coal washing as based on end use of coal or coke. Work completed.

Item 133: Production of activated carbon from coal. Work completed.

Item 150: Study of petrographic constituents of coal as affecting coking properties.

Item 151: Study of equipment for rapid moisture determination of coal.

Item 152: Study of advantages of separate crushing of the individual coals in a blend of coking coals.

Item 153: Study of effect of blending low-temperature chars with coking coals. This involves determination of the best type of retort in which to make the char.

Item 154: Investigation of pretreatment of coals to improve coke quality.

Item 156: Use of full size or small test ovens to determine coking properties of coals.

We are as well equipped as any organization in the country to make that determination. We have considerable cost in equipment and manpower in conducting those tests.

Item 157: Study effect of pretreating coal, with and without oxidation.

Item 158: Determine effect of various additives to coal on quality of coke.

Item 159: Develop possibilities of ferrocoke process.

Item 177: Determine best operating conditions for making char for use in coal blends for coke production.

Item 179: Make comprehensive study of nature and composition of low-temperature tar.

Item 201: Introduce simplification of analysis procedure.

Item 202: Apply statistical methods to analysis and process control.

Item 203: Standardize procedures and terminology.

Item 204: Study distribution and nature of plant residues.

Item 205: Study the various physical properties of coal.

Research possibilities dealing primarily with the various phases of mining that should be investigated.

There are the earlier items in the bulletin:

Item 1: Investigate the formation and development of coal beds and the effects of physical, chemical, and biologic factors (see also 204).

Item 2: Development of new geophysical methods of finding and estimating extent of coal deposits.

Item 3: Map reserves more intensively, including information on variations in quality of coal with location and on the nature of minerals associated with coal.

Items 4–32, inclusive: Dealing with underground mining methods and equipment, roof control, ventilation, power and lighting, and strip mining.

Items 33–42, inclusive: Covering underground gasification. This might have great possibility at mines which still contain workable coal, but have been abandoned due to unfavorable economic conditions.

Those are things we have been working on for a great number of years.

Mr. CHENOWETH. Let me ask you this, Mr. Williams: In any of these processes or experiments, are you developing any technique which offers any promising of increasing the consumption of coal in the near future, discovering new ways to develop these byproducts which might make it commercially possible for coal to be consumed in large quantities?

Mr. WILLIAMS. Well, certainly the work of our research dealing with byproducts has been extensive, altering the forms and types of the occurrence of byproducts where they will make for better marketing.

For instance, we renownedly in the steel industry produced ammonium sulfate from the ammonia occurring in our liquids removed from the byproducts coke oven. It has been necessary, in order to market the ammonium to convert it to a di-ammonium phosphate. So our plant is now producing at considerable expense of equipment to convert to di-ammonium phosphate and market in that form. That is one of the most recent that comes to mind.

There are a number of others—better utilizing the characteristics of our byproducts, making them more marketable, that we are constantly working on.

Mr. CHENOWETH. If there should be a substantial increase in the demand for coal, would the Colorado Fuel and Iron Corp. be in a position to do to meet the demand? These mines have been abandoned. Are there any that could be reopened, or do you have other seams that could be developed?

Mr. WILLIAMS. There are other seams that could be developed. Of course, we are in a bountiful supply of coal, and new mines could be opened in entirely virgin country.

Mr. CHENOWETH. As I understand, Colorado Fuel and Iron Corp. still owns considerable coal. Is that correct?

Mr. WILLIAMS. We do.

Mr. CHENOWETH. Which has never yet been developed, or even tapped?

Mr. WILLIAMS. That is right.

Mr. CHENOWETH. There would be, you think, an interest on the part of the company in developing that coal if a market for it could be developed, if it could be used in synthetic fuels or something of that nature?

Mr. WILLIAMS. We are quite sure of that.

Mr. CHENOWETH. You have got the coal, and you are ready to do business?

Mr. WILLIAMS. Yes.

Mr. CHENOWETH. I will not take any more time. Thank you very much, Mr. Williams.

I want to take this opportunity personally to thank you and all of the others for your splendid cooperation in helping to arrange this meeting. You have been very helpful.

Mr. WILLIAMS. Thank you.

Mr. EDMONDSON. I want to join my colleague in that. We appreciate the hospitality and the hospitality of the city in these very fine accommodations. Thanks to all of you.

Mr. CHENOWETH. The next witness is Mr. Tom Allen, Colorado State coal mine inspector. I am sure Mr. Allen will have some information of great interest to the committee.

Mr. EDMONDSON. Do you have a prepared statement, Mr. Allen?

STATEMENT OF TOM ALLEN, COLORADO STATE COAL MINE INSPECTOR

Mr. ALLEN. I do not have a prepared statement. I have several statements of coal production I want to file with you, but they are not prepared written statements, except for production and resources, and so forth.

I have here the production report of the State of Colorado for the State as a whole since 1864 to 1956; the 1955 annual report; the United States Geological Survey report on Colorado coals. I do not want to give you that yet. I want to refer to it.

I have a map of the coalfields of Colorado, a table of all of the productions, the number of mines, the number of men for the State of Colorado from 1910 to 1956. And I have our annual report for 1956, not quite complete.

Mr. EDMONDSON. If there is no objection by the committee, the table on production from 1864 through 1956, and the table of information concerning report material of the Colorado State Coal Mine Inspection Department, covering days of work, accidents, and so forth, will be made a part of the record at this point.

Mr. ALLEN. And here is a short report on the activities of the synthetic fuels committee which Senator Taylor spoke of.

Mr. EDMONDSON. If there is no objection, the report on the synthetic fuels program, February 1957, and the monthly report of the Colorado Coal Mine Inspection Department for December 1956 will also be made a part of the record at this point.

The Annual Report for the State of Colorado for 1955 will be made a part of the committee file.

Hearing no objection, it is so ordered.

(The reports follows:)

REPORT ON SYNTHETIC FUELS PROGRAM, FEBRUARY 1957

By Thomas Allen, chief coal mine inspector of Colorado

Active thought concerning the development of the coal resources of Colorado for the production of chemicals and electric power has been definitely established during the year 1956. Strongly financed groups have shown that they are interested in coal chemicals, electricity from coal burning plants, and a supply of artificial gas to supplement the reserves of natural gas. In some cases construction is started—definitely on plants to produce electricity; in others, holdings have been acquired for development in the not too distant future.

Cheap available electricity is a must for industrial expansion, metal mining and population increase and, therefore, plants to supply this form of energy are now under construction in some places with others proposed in various locations. For instance, an electric plant is being constructed at Nucla, Colo., to meet the direct and indirect demands of uranium mining. Future plans include similar plants at Cortez and Durango in Colorado, in the Henry Mountains for Utah mining, and in the region of New Mexico immediately south of Durango, Colo. Very large areas are being held near Craig, Colo.; probably dual-purpose plants

for electricity and chemicals—enormous demands of electricity will be needed for the development of the phosphate deposits occurring in the Tri-corner region of Colorado, Utah, and Wyoming—plus the increasing demand for uranium mining in that region.

A plant is being built at Cameo, Colo., to meet the demands of the fast development of the Grand Junction region—uranium, potash, etc. North of Denver a new plant, coal burning mostly, is in the course of construction. The Paonia region is being studied for coal distillation and electrical production; this region and Crested Butte are also coming to the development of the anthracite deposits of Kebler Pass. It should be noted that there are no deposits of anthracite in the West excepting in Colorado, found in the Crested Butte area of Gunnison County, and Routt County; the New Mexico deposits are nearly exhausted.

A big plant is needed near Walsenburg or Aguilar because of the development of the Arkansas Valley, the San Louis Valley, and Pueblo regions. This plant should be coupled to plants near Canon City and Florence for the best results.

Another plant can be built east of Colorado Springs for eastern Colorado, western Kansas, and western Nebraska. Some thought has been given to plant construction at Pine Bluffs, Wyo. to supply this region; every effort should be made to show the possibility of the lignite deposits east of Colorado Springs to fuel a large power plant. Similar lignite deposits are now being successfully developed in Texas.

Much more power must be supplied to the Rifle area near Glenwood Springs for pulp mills and limestone-marble development. Information has been requested concerning the coal reserves surrounding Meeker, Colo., and it may be stated that they are of huge tonnage. The request from Meeker shows that there is a definite need for more detailed information on the coal deposits in many other parts of Colorado.

A special feature of such large electric plants is the concentration of coal ash at the plants—for most of the rare minerals associated with coal are retained in the ashes after combustion—for instance, "germanium" which is known in many Colorado coals.

COKING COAL

The growth of production of coking coal will be fantastic. Already a production of 100,000 tons per year is coming from the Glenwood Springs area. This will increase to a production of 1 million tons in the next 5 to 10 years.

Development will grow in the Paonia region—60 million tons of coking coal are definitely known—with probably the same tonnage known but not explored enough to determine the exact reserves. This coal will go to steel plants in Utah and California.

Large reserves of coking coal are known near Durango. Smelting and other requirements will need this coal. Durango should be coupled up with broad gage railroads from Alamosa to Durango, and from Durango to Gallup, N. Mex.

These railroads are surveyed and they should be constructed without delay because the Durango region has practically unlimited possibilities in minerals, agriculture, etc., necessary to the growth of the west coast and to points East.

Coking coal in the Trinidad district will continue to supply the steel mills of Pueblo, Colo., for 100 years or more. Some may be shipped from the Trinidad-Raton field to California. Already blocks of coal land are being assembled for coal for such markets. This is in addition to the steadily growing demand of the Colorado Fuel & Iron Corp.'s Pueblo plant.

Definitely the growth of the west coast depends on the coal deposits of the Rocky Mountains—there is no coal on the west coast, with the exception of the State of Washington. Colorado coals will play a large part in west coast development.

Recently the United States Bureau of Mines published a statement that coal will soon be used for the manufacture of artificial gas. This is a rather belated statement because in 1955 and 1956 natural gas producers had geologists exploring the coal fields of Colorado for such purposes.

The oil shale deposits of Colorado are known to be the largest in the world. They can be included in the development of hydrocarbon deposits. It has been suggested that oil shale and coal be included in a common program—such an arrangement could be of advantage to both. It may be that the resources of over 2 billion tons of coal in the Grand Hogback extending from New Castle to Meeker may add to the possibility of the oil shale development, inasmuch as

power could be produced directly from the coal—the production from oil shale going into other valuable products.

This is a very short report, but it is hoped that it is of enough value to create a more general interest in the hydrocarbon deposits of Colorado (coal and shale particularly), and the necessity for their development in the program of the growth of the whole of the State. Much work is yet to be done—the Coal Mine Inspection Department will continue to be of every possible assistance in all future activities.

The Legislative Committee for Synthetic Fuels should be appreciated for the work they have sponsored in the past and it is hoped that such a committee will be continued in the future and the program extended, because undoubtedly the fuel and energy resources will be a major factor in the growth of the State. Some may point to uranium as competitive in the energy market—it will not be competitive but will take its place as part of the overall effort including coal, oil shale, gas, oil, and uranium, all contributing to the growth of the Nation.

Colorado State coal mine inspection department, Denver, Colo.—Monthly report for December 1956

County and mine	Men	Days	Production		Injuries			
			December	To date	Fatal		Nonfatal	
					December	Total	December	Total
Archuleta:								
Columbine	(1)			4				
Garcia	3	21	53	118				
Total	3	21	53	122				
Boulder: Black Diamond No. 2	(1)			5,419				
Delta:								
Blue Ribbon	6	15	426	3,909				1
Green Valley No. 2	6	26	3,376	8,932				
King	28	17	4,535	32,538				
Paonia-Farmers	2	20	191	1,688				1
Red Canon No. 1	4	25	702	3,831				1
Tomahawk	6	17	1,115	5,986				
Top	6	20	520	3,346				
Total	58	140	10,865	60,230				3
El Paso:								
Franceville, strip	2	19	534	5,040				
Pikeview	37	26	10,464	41,357				2
Total	39	45	10,998	46,397				2
Fremont:								
Annex	(2)			4,951				
Beer, strip	5	20	2,305	10,670				
Black Knight No. 2	4	18	132	1,498				
Caldirola No. 2	6	21	428	9,392				2
Canon Black Diamond	6	16	1,701	26,327				
Canon Chief	(2)			8,071				
Canon Liberty	4	23	747	5,642				1
Canon National	7	20	1,993	25,974				
Canon Wolf Creek No. 2	9	25	737	6,988				1
Canon Zenith No. 2	4	18	341	3,767				
Cedar Canon	7	19	1,274	16,176				1
Coal Creek Canon	5	24	1,234	9,942				
Corley No. 6	(3)			12,027				
Double Dick	7	20	1,540	13,348				
Golden Quality No. 3	(1)			1,545				
Golden Quality No. 4	6	23	821	5,768				
L. & C. No. 2	5	20	333	3,560				
Pine Gulch No. 2	(3)			752				
Pine Gulch No. 3	4	20	278	3,811				
Pioneer Canon	13	22	3,187	25,842				
Pioneer, strip	(1)			211				
Rex Carbon	6	22	1,070	12,140				
Twin Pines	3	23	399	1,053				
Vento	11	20	2,703	31,618				1
Total	112	374	21,232	241,146				6
Garfield:								
Atlas No. 3	2	23	32	101				
Harvey Gap No. 3	4	25	319	1,768				
I H I No. 2	5	20	791	8,112				
I H I No. 3	6	20	838	9,018				
Marion-Kilroy	(3)			1,948				
New Castle	8	22	715	2,709			2	2
North Canyon	6	21	754	5,681				
Rex	9	23	497	1,406				
Sunlight	5	23	597	5,107				1
Total	45	177	4,543	35,850			2	3

See footnotes at end of table.

Colorado State coal mine inspection department, Denver, Colo.—Monthly report for December 1956—Continued

County and mine	Men	Days	Production		Injuries			
			December	To date	Fatal		Nonfatal	
					December	Total	December	Total
Gunnison:								
Baldwin	3	18	178	1,216				2
Bear	55	17	7,024	57,982				
Black Beauty	12	20	1,843	11,368				
Edwards	10	17	1,676	11,833				
Hawk's Nest	26	21	5,219	36,967				2
Hinkle	2	22	181	916				
Nu-Mine No. 2	13	23	2,576	17,965				1
Ohio Creek No. 2	3	25	407	2,959				
Oliver No. 3	28	16	4,280	45,145				
Somerset	83	17	9,757	117,501				7
Total	235	216	33,141	303,852				1
Huerfano:								
Black Beauty	(3)			1,020				
Blue Blaze	(3)			635				
Caddell No. 2	(3)			413				
Delcarbon	22	17	2,072	15,707				3
Gordon	8	17	1,693	11,740				
Leader No. 2	4	19	209	2,132				
Maitland No. 1	3	10	237	1,825				
Maitland No. 2	10	16	757	5,033				
Major No. 2	4	20	510	5,894			1	1
Morning Glory	14	17	1,477	17,120				1
Peaks	(3)			159				
Rugby No. 6	6	21	240	1,541				1
Total	71	137	7,195	63,219			1	7
Jackson: Marr mines	(2)			1,781				1
La Plata:								
Blue Flame	4	21	365	3,431				
Burnwell No. 2	3	17	431	7,343				
Coal King No. 2	3	22	227	1,006				
Hay Gulch No. 2	3	23	238	2,015				
King	3	25	534	5,536				
Minoletti	4	21	640	4,293				
Morning Star	4	20	367	2,625				
Peacock	4	24	354	4,694				
Peerless	2	14	145	1,000				
Victory No. 1	4	20	810	14,443				
Victory No. 2	2	20	222	2,773				
Victory No. 3	4	20	1,100	5,550				
Wright No. 1	2	3	62	1,092				
Total	42	250	5,495	55,787				
Las Animas:								
Aguilar-Imperial	(2)			1,449				
Allen	519	17	57,586	577,248				10
Anchor No. 2	(3)			140				
Baldy No. 2	18	20	648	3,819				1
Berwind Canon	4	19	217	1,169				
Brodhead No. 2	4	19	336	3,024				
Burro Canyon No. 3	3	16	55	341				
Delagua No 3½	2	20	88	521				
Engleville	2	23	283	2,524				
Franklin	(3)			546				1
Frederick	567	17	26,712	354,457		1		1
Gem	(3)			800				
Grey Creek Nos. 6 and 4	5	19	321	4,538				1
Martinez	(3)			173				
Morley	(1)			51,443				1
Peacock	4	25	332	2,745				
Prosperity No. 2	2	24	79	502				
Rainbow	2	10	14	79				
Rapson No. 2	6	26	1,189	11,814				2
Red Glow	3	7	42	425				
Starkville No. 4	4	21	221	2,141				
Total	1,145	283	88,123	1,019,898		1		17

See footnotes at end of table.

Colorado State coal mine inspection department, Denver, Colo.—Monthly report for December 1956—Continued

County and mine	Men	Days	Production		Injuries			
			December	To date	Fatal		Nonfatal	
					December	Total	December	Total
Mesa:								
Blue Flame	3	24	572	4,728				
Cameo	32	16	4,674	51,041				1
Farmers-Nearing	(3)			189				
Gearhart	10	21	697	4,260				
Hidden Treasure	2	15	200	2,249				
Hunter	2	20	136	416				
Hy-Grade	5	20	648	2,453				
McGinley	3	24	436	2,589				
River View	5	15	460	3,024				
Winger	2	24	160	605				
Total	64	179	7,983	71,554				1
Moffat: Red Wing	47	17	12,797	96,461			1	1
Montezuma: Montezuma No. 2	(3)			363				
Montrose: Independence	4	25	326	2,807				
Pitkin:								
Dutch Creek	7	16	2,350	6,204				
Thompson Creek No. 1	55	15	5,629	61,377				1
Thompson Creek No. 3	50	15	6,104	86,079		1		6
Thompson Creek No. 4	(3)			102				
Total	112	46	14,083	153,762		1		7
Rio Blanco:								
Blue Streak	5	18	939	8,329				
Rienau	4	26	813	5,848				1
White River	(3)			2,112				
Total	9	44	1,752	16,289				1
Routt:								
Apex	1	24	106	716				
Crow Bar and Black Magic Strip	19	14	1,790	19,628			1	2
Edna, strip	46	17	25,263	163,588				1
Harris	90	17	13,304	88,446			1	4
Johnnies	2	23	44	342				
Keystone	60	15	5,324	39,742				2
Osage, strip	37	20	28,762	169,508				
Rice Pinnacle	(3)			1,430				
Sun	(3)			101				
Total	255	130	74,593	483,501			2	9
San Miguel: Keck-Reliance	1	7	16	50				
Weld:								
Boulder Valley No. 3	68	22	17,711	85,042				
Eagle	112	22	38,725	234,912				4
Imperial	37	22	10,498	37,187				
Lincoln	55	22	14,258	67,530			1	2
Shamrock	(1)			8,557				
Sterling	44	21	9,281	51,276				1
Washington	109	22	22,053	153,889				6
Total	425	131	112,526	638,393			1	13
Grand total:								
1956	2,667	2,222	405,721	3,296,881		2	7	83
December 1956		[4]19.7						
Grand total:								
1955	2,783	2,572	450,182	3,363,306		8	7	85
December 1955		[4]19.1						

[1] Closed.
[2] No report.
[3] Idle.
[4] Average days worked per mine.

Mines listed, 142; idle, 10; closed, 6; no report, 11.

Monthly reports are to reach this office by the 15th of each month, and must show all accidents, stating the cause and nature of each injury, and days lost due to injury.

Reminder: Annual reports due by February 1.

THOMAS ALLEN, *Chief Inspector.*

Colorado State Coal Mine Inspection Department

Year	Tonnage	Mines	Men	Days average	Accidents		Per 1,000		Tons per		Fatals, explosions, fires	Insurance rebate
					Fatal	Nonfatal	Fatal	Nonfatal	Fatal	Nonfatal		
1895	3,637,264	103	7,354									
1900	5,495,734	108	7,471									
1905	8,989,631	175	11,891									
1910	12,104,887	155	14,738	?	319	146	21.60	9.23	37,946	82,910	222	
1911	10,197,595	164	14,315	174	91	305	6.35	21.30	122,862	33,435	19	
1912	11,016,948	160	13,981	192	98	356	7.06	25.60	112,418	30,946	17	
1913	9,268,939	178	12,871	192	110	354	8.60	27.50	84,263	26,183	39	
1914	8,201,423	188	10,596	177	75	356	7.00	33.60	109,352	23,038	1	
1915	8,715,397	199	12,563	166	64	712	5.10	56.70	136,178	12,241	4	
1916	10,822,185	219	12,598	176	44	889	3.35	67.00	239,095	11,836	0	
1917	12,515,305	238	13,970	191	188	1,563	13.50	112.00	66,571	8,004	122	
1918	12,658,055	249	14,374	169	71	1,227	4.90	85.50	177,578	10,276	5	
1919	10,406,543	241	12,799	221	91	1,283	7.10	100.00	114,357	8,110	32	
1920	12,514,693	231	13,665	256	70	1,806	5.40	132.00	178,781	6,930	0	
1921	9,141,947	249	14,164	164	52	1,520	3.60	107.30	175,807	6,014	11	
1922	10,003,610	275	13,436	200	74	1,724	5.50	128.30	135,184	5,803	17	
1923	10,336,735	276	13,277	170	66	1,679	4.97	126.46	156,617	6,156	17	
1924	10,501,088	271	12,703	182	44	1,851	3.48	145.70	238,661	5,673	1	
1925	10,440,387	283	12,228	187	57	1,912	4.66	156.36	183,165	5,460	4	
1926	10,616,760	264	11,768	203	52	1,863	4.42	158.10	204,168	5,699	7	
1927	9,781,580	271	11,453	194	54	1,916	4.70	167.30	181,140	5,105	7	
1928	9,921,585	271	11,474	188	35	1,810	3.05	157.75	283,474	5,482	0	
1929	9,934,064	269	11,196	181	53	1,726	4.73	154.16	187,435	5,165	0	
1930	8,238,094	275	10,683	165	36	1,522	3.38	142.47	228,836	5,413	0	
1931	6,604,063	318	10,015	140	22	1,238	2.50	123.60	300,185	5,334	4	
1932	5,616,525	345	8,786	135	29	1,083	3.30	124.40	193,673	5,187	1	
1933	5,284,872	375	8,179	140	20	1,042	2.20	127.40	264,244	5,072	2	
1934	5,251,003	352	8,138	143	21	963	2.50	118.30	250,048	5,453	1	
1935	5,953,601	378	8,426	165	26	836	2.65	99.22	228,985	7,122	4	[1] 10
1936	6,868,801	360	9,065	167	29	861	3.20	94.90	236,856	7,978	8	[1] 15
1937	7,222,092	334	9,543	196	24	679	2.51	71.20	300,921	10,636	1	[1] 20
1938	5,730,291	395	8,688	156	33	542	3.80	62.40	173,645	10,572	0	[1] 35
1939	6,002,125	383	8,457	168	26	524	3.07	61.96	230,851	11,454	1	[1] 40
1940	6,673,359	358	8,217	176	24	520	2.92	68.30	278,057	12,833	2	[1] 40
1941	7,008,037	332	7,881	171	23	565	2.92	71.69	304,697	12,403	0	[1] 40
1942	8,131,764	293	8,041	194	58	714	7.21	88.79	140,203	11,389	37	[1] 40
1943	8,372,683	251	7,402	206	26	749	3.51	101.20	322,026	11,178	1	[1] 45

1944	8,202,401	241	6,707	211	22	663	3.28	98.85	372,836	12,371	1	[1] 35
1945	7,656,612	231	6,282	209	25	610	3.98	97.10	306,265	12,552	0	[1] 35
1946	5,928,823	238	6,273	168	19	455	3.03	72.53	312,043	13,030	0	[1] 35
1947	6,381,016	263	6,143	169	14	361	2.28	58.79	455,081	17,649	0	[1] 35
1948	5,682,512	258	5,699	163	11	308	1.93	54.22	516,352	18,441	0	[1] 35
1949	4,578,154	238	5,291	162	11	243	2.08	45.94	413,326	18,846	0	[1] 35
1950	4,274,887	233	4,837	155	10	190	2.07	39.28	427,489	22,499	0	[1] 35
1951	4,111,945	223	4,271	156	4	197	.94	46.13	1,027,986	20,873	0	[1] 35
1952	3,643,523	187	3,630	150	5	157	1.37	43.25	728,704	23,207	0	[1] 20
1953	3,598,867	171	3,359	150	3	121	.89	36.01	1,199,622	29,743	0	[1] 20
1954	2,922,365	158	2,878	155	3	86	1.04	29.88	974,122	33,981	0	[2]
1955	3,366,490	150	2,834	161.5	8	85	2.28	29.99	420,811	39,606	----------	----------
1956	3,303,661	143	2,675	163.2	2	84	.747	31.40	1,651,831	39,332	----------	----------

[1] State insurance, percent. [2] $5.92 per 100.

Coal production from 1864 through 1956

Year:	Tonnage	Year—Continued	Tonnage
1864	500	1911	10, 197, 595
1865	1, 200	1912	11, 016, 948
1866	6, 400	1913	9, 268, 939
1867	17, 000	1914	8, 201, 423
1868	10, 500	1915	8, 715, 397
1869	8, 000	1916	10, 522, 185
1870	4, 500	1917	12, 515, 305
1871	15, 600	1918	12, 658, 055
1872	68, 540	1919	10, 406, 543
1873	69, 997	1920	12, 514, 693
1874	77, 372	1921	9, 141, 947
1875	95, 838	1922	10, 003, 610
1876	117, 666	1923	10, 336, 735
1877	160, 000	1924	10, 501, 088
1878	200, 630	1925	10, 440, 387
1879	322, 732	1926	10, 616, 760
1880	375, 000	1927	9, 781, 580
1881	706, 744	1928	9, 921, 585
1882	1, 161, 479	1929	9, 934, 064
1883	1, 220, 593	1930	8, 238, 094
1884	1, 130, 024	1931	6, 604, 063
1885	1, 398, 796	1932	6, 616, 525
1886	1, 436, 211	1933	5, 284, 872
1887	1, 791, 735	1934	5, 251, 003
1888	2, 185, 477	1935	5, 953, 601
1889	2, 400, 629	1936	6, 868, 801
1890	3, 075, 781	1937	7, 222, 092
1891	3, 512, 632	1938	5, 730, 291
1892	3, 771, 234	1939	6, 002, 125
1893	3, 947, 056	1940	6, 673, 359
1894	3, 021, 028	1941	7, 008, 037
1895	3, 339, 495	1942	8, 131, 764
1896	3, 371, 633	1943	8, 372, 683
1897	3, 565, 660	1944	8, 202, 401
1898	4, 174, 037	1945	7, 656, 612
1899	4, 826, 939	1946	5, 928, 823
1900	5, 495, 734	1947	6, 381, 016
1901	6, 021, 405	1948	5, 682, 512
1902	7, 522, 923	1949	4, 578, 170
1903	7, 775, 302	1950	4, 274, 887
1904	6, 776, 551	1951	4, 111, 945
1905	8, 989, 631	1952	3, 643, 523
1906	10, 308, 421	1953	3, 598, 867
1907	10, 965, 640	1954	2, 922, 365
1908	9, 773, 007	1955	3, 366, 490
1909	10, 722, 490	1956	3, 303, 661
1910	12, 104, 887		

Coal shipment and disposal

County	Railroad	Truck	Power and heat	Out of state	Chemically treated
Archuleta		353			
Boulder	1,302	23,139	60		1,794
Delta	24,086	27,713	641	2,989	2,070
El Paso	5,577	53,421	14,486		30,000
Fremont	11,487	206,344	60	6,786	
Garfield		33,930	7		800
Gunnison	255,757	57,902	15,023	156,243	41,863
Huerfano	23,529	41,335		3,965	3,408
Jackson		2,251			
La Plata	10,361	39,903	32		
Las Animas	1,066,069	34,119	11,131	314	
Mesa	11,687	38,137	204		3,689
Moffat	87,458	13,098		39,364	40,695
Montezuma		1,108			
Montrose		3,215	5		
Pitkin	94,297			94,297	
Rio Blanco	4,500	15,547		7,544	8,851
Routt	478,115	41,899	2,928	162,762	76,615
San Miguel		50	6		
Weld	345,938	263,454	4,826	600	30,136
Total	2,420,163	898,918	49,409	474,814	239,921

Mr. ALLEN. You have experts in every line. My information is fairly general on the coal reserves of the State.

I am excepting to the publication of the United States Geological Survey on coal in Colorado made in 1953. Definitely this report does not cover what tonnage we actually have, because in their investigation I know what they did. They went around the edges of the coal field, and only reported the coal that was definitely in place. That in a great big basin between the edges was too doubtful to be included. But they give a report where we have 100 billion tons of coal available for right-away mining in the State of Colorado, divided into the different coal fields.

Generally, our bigger coal fields are the Green River region, which is northwest Colorado; the Jackson County North Park Field; the Denver region, which extends from north of Denver to south of Colorado Springs; the Uinta region, which is part of the greater Uinta field, which extends into Utah, in western Colorado; the San Juan region, which is in the southwest corner; and the Trinidad or Raton Mesa region, in Huerfano and Las Animas Counties.

This is a map made by the United States Geological Survey with some corrections and additions.

Mr. EDMONDSON. Is that available for the committee files?

Mr. ALLEN. You can have that, too.

Mr. EDMONDSON. Without objection, it will be made a part of the committee files.

(The map will be found in the files of the committee.)

Mr. EDMONDSON. Do you have any reason to disagree with the United States Geological Survey estimate of 100 billion tons?

Mr. ALLEN. They are very conservative. We can say that. It is my opinion, having been around all the edges of all of these coal fields, and in the interiors in the prospecting work I have done for coal companies, there is probably 200 billion instead of 100. They will not accept the condition of a series of coal beds that go under, and they come out at a certain distance miles away. Their middle is unknown. They do not accept that. We coal miners do.

Mr. EDMONDSON. Are you including that in the 200 billion, now?

Mr. ALLEN. I am including what is probably in the basins.

Mr. EDMONDSON. Are you including your subbituminous and lignite?

Mr. ALLEN. Subbituminous; we have no lignite. We only have subbituminous and bituminous, and we have some anthracite.

Mr. EDMONDSON. And you include all of those in——

Mr. ALLEN. In the 100 billion we are excepting from the Government statement.

Mr. EDMONDSON. What is your total on anthracite?

Mr. ALLEN. Anthracite is a billion tons, possibly, in the State of Colorado, in two areas, about three-quarters of a billion accepted in the Crested-Butte area, and the balance in Routt County, Colo. Those are anthracite deposits. This is the last anthracite in the West.

The New Mexico deposits are being rapidly depleted. That is the only other western coal we have of that kind. Future anthracite will have to be from these areas, or from Pennsylvania, and some from Arkansas and Oklahoma.

We have tremendous beds of subbituminous coal. In some cases, people refer to its as lignite, but the Government's classification is that any coal which is black is subbituminous. They only classify lignite as brown coal, higher water content.

Mr. EDMONDSON. How would you divide your total between bituminous and subbituminous?

Mr. ALLEN. That is not broken down too well, because of the terrific lack of exploration that has been done in the remote areas. But our most valuable deposits are extreme large areas of good bituminous coal. Our greatest value is in that.

Colorado in areas like Huerfano County, Las Animas County, parts of Routt County, Canyon City, Durango, and so forth, is reputed to have the largest reserves of bituminous coal of any State in the Union. That is a common statement.

There is some discrepancy in statements made concerning coal, and they get to worrying whether we have 101 billion or 100 billion. To me, 1 billion does not make any difference one way or another, since we have so much. We have enough with 100 billion to last the United States—if you figure a half a billion tons a year, how long will it last the United States on 100 billion? It will last all of the United States 200 years, without what our neighbors have in Wyoming, New Mexico, Utah, Montana. Forty percent of the reserves of the coal in the world are in the Rocky Mountains—40 percent.

Mr. EDMONDSON. You do not even get very belligerent over the difference between 100 billion and 200 billion.

Mr. ALLEN. No. It is going to last so long. As I said, by the time we exhaust this coal, scientists probably 1,000 years, or 1,500 years, or 2,000 years from now will have invented some way of getting heat from the sun, or from tidal waves. If we haven't any by that time, it is too bad for them; they can freeze to death as far as I am concerned.

Mr. EDMONDSON. Would you tell us a little bit about the general mining conditions, the thickness of seams, percentage of mining being carried on on a strip basis, and a few bits of information such as that?

Mr. ALLEN. We have seams of every known thickness, every known inclination, every known quality. We don't mess with seams of 3 feet

or less like they do in Alabama or those places. In fact, in making an estimate in places like northwest Colorado, I didn't count anything less than 5 feet. If they did that in Alabama, they would not have any coal, because they do not have anything thicker than 5 feet.

We have seams of bituminous coal in different parts of the State that run from 10, 15, 20, 25, 35, 45, and 65 feet thick, in the areas away from this part of the country. In our general statement as far as the whole of the eastern slope, I would figure our average is about 6 feet. If we get below that, we do not bother very much, except in local places where there is an immediate market for small productions.

I see in Alabama they are working 24 inches, and I see they are working a 5-foot seam of coal with 18-inch band in the middle of dead rock. So I think it is about time you are getting some action out here on coal, and trying to reserve some of that. You are going to get into a condition where you are going to need us pretty soon. That is why I am in favor of everything being done for coal.

Mr. EDMONDSON. What is the extent of mechanization?

Mr. ALLEN. We are practically going as fast as we can to a hundred percent mechanization in Colorado. The C. F. & I. mine at Allen is 100 percent mechanized.

The trouble with our mechanization here, we have so many small operations, family mines, and so forth, they cannot afford to buy the equipment necessary to mechanize for the production they have. You cannot buy a hundred thousand dollar machine to produce 5 or 6 thousand tons a year, you know.

Mr. EDMONDSON. In your mechanized mines what is the average production per man?

Mr. ALLEN. It varies very considerably. The Colorado Fuel & Iron could give you more from their reports. On what I have, 7 to 10 tons would be an average for the State, but some larger mines go up to 20 per man. And remember, we are just in the period of experimentation. Until a very few years ago there was no mechanization in Colorado. We are now just learning how to develop it.

But I look for greater production from our mines if we had the markets. There is no use in butting your head up against a continuous miner (mining machine) if you produce enough a week to supply your annual demands. You cannot do that. It is the demand that stops us.

Mr. EDMONDSON. Do you have any questions, Mr. Metcalf?

Mr. METCALF. No questions.

Mr. EDMONDSON. Mr. Saylor?

Mr. SAYLOR. Mr. Allen, how long have you been with the Department?

Mr. ALLEN. Twenty-one years, and fifty years in the Rocky Mountains in the coalfields.

Mr. SAYLOR. I just looked over here the report of the Colorado State coal mine inspection, and I notice that since 1951 your number of fatal accidents has been going down and, in 1956, you only had two fatal accidents.

Mr. ALLEN. Yes.

Mr. SAYLOR. I would like to commend you. That indicates to me that your mine inspectors are doing a good job.

Mr. ALLEN. Well, the operators are doing a good job, and the miner safety committees are. They are all working together. That is what does it. We all push it.

We need more information on coal.

Mr. Williams, in his highly technical statements concerning different phases of investigation of coal and byproducts, was far beyond me. I am a coal-mining engineer; a production man really is what I am. I do not bother with too much of that, excepting that I know that electricity is doubling. The requirements of electricity are doubling every 5 years.

You get so much erroneous information that does not gibe. Some authorities say the demand for coal chemicals is increasing 35 percent a year, and all we can get from coking plants is 5 percent a year. Another expert says this is all hooey.

Another one says you can produce gasoline from coal within about 1 cent a gallon of what they get out of present wells. Another one says you cannot produce it within 15 cents. That is the need for research and investigation and proper information, so we will know what we are doing from now on.

Mr. SAYLOR. Mr. Allen, I am glad to know it perplexes you, because it perplexes some of the rest of us in trying to get to the root of this.

Mr. ALLEN. I listened to them all in these different meetings. It is the same with the USGS. This stuff they gave tells about the fossils and series, and who cares about the fossils? What we want to know is, can we work that coal.

Mr. SAYLOR. What you are interested in is——

Mr. ALLEN. Can we work it at a profit, and is it any good.

Mr. SAYLOR. You are interested in trying to find more markets for your coal?

Mr. ALLEN. That is what we are interested in, because we have got it here.

You know that the coal industry is the biggest factor when we have a war. You always go to the coal industry, and the coal industry always pulls you out every time. It is about time—if you are going to get this third world war, you had better have this part of the country developed, or you will be fighting Uncle Joe with half the country developed.

Mr. SAYLOR. Mr. Allen, let me ask you this: What methods or what research has your department done in developing mining in this thicker veins of coal?

Mr. ALLEN. We work with the operators on all the methods of mining. In the thicker veins of coal—the thickest I worked was 65 feet. We did a pretty good job of getting that out, although with an indifferent market you had to adopt certain systems.

For instance, our thick subbituminous takes fire if there is a lot of loose coal in the vein. So we would take a lot that would last the winter, and take it out. It would be different if we had a continuous year-around market, though.

I think we in Colorado are just as up to date as anybody. My operators and mining men in the State know just about as much about coal mining as anybody in the United States. I think as the problems arise, they will develop. And that applies to the whole of the Rocky Mountain region.

One point I would like to try to get over is that, in your own records of labor statistics and production reports, there is a statement made that the producion per man in manufacuring and so forth in this part of the country is 30 percent more than what it is per man in the East. It doesn't say why. Maybe it is the climate; maybe it is the way we feed them. I do not know what it is, but they do it, and your Government agencies accept it.

Another thing I am disappointed in is your dispersal of industry, dispersal from the East around Denver, where one big bomb would knock the whole works out, while in southern Colorado, from Pueblo east and south, you could put every kind of a plant up you wanted.

They are talking about having no water. We have enough underground water to supply anything. You could have test places for trucks, automobiles, anything.

Another thing, we have no fogs, or nothing. You can see what you are doing. We have no blizzards in this part. We have them in the mountains but, ultimately, when somebody gets guts enough to drive a tunnel, we can go at any time.

The future of America depends upon the mineral resources of the West of America—our uranium, our coal, our oil shale—and it is time Uncle Sam was getting busy and realizing this is not a great colony. Like Great Britain, she fiddled around with colonies, and see where she is now. She could have had another Britain built in Canada. She could have had another Britain in Australia. That is, if she had shipped the kids, and those who get the kids into those places, and developed those resources there.

You know what is in Canada. In Britain they are mining coal 14 inches thick, 3,000 feet down under the sea, and every place they can go for it. They are producing 1 ton per man per day and trying to remain as a big power. It is solely stupidity, obstinacy. Whatever you call it, I know of no such race as them.

I said to a nephew who is there, "What happens if Russia starts something?"

He said, "Sure, she will fight."

I said, "What are you fighting for? You haven't got anything left."

Another thing we have here is the brains in America to do anything. It is about time we were turning to the mineral industries development of the West in every way, shape, and form.

I am no research man, but I have been around enough to know what they are doing.

Dr. Parry was second to none in the school of mines. The C. F. & I. have men on their staff that are a match with any national men. We have them here, if you will give them any encouragement.

But what are we going to do after we find all these things?

The last time I talked to one of these bigger men in New York, he said already from the distillation of coal he had 24 new substances that had come from coal which he still had bottled up, and he did not know what the devil they were. When we are so ignorant as that, it is about time we were waking up with our greatest natural resource.

Coal will answer your problem on gasoline, artificial gas, energy, and everything; the coal here. Remember, 40 percent of the world resources are sticking right in the grassroots here. We do not dig shafts like you do in Pennsylvania.

Mr. SAYLOR. I know.

Mr. ALLEN. We just kick the badger out of the hole, and make the hole a bit bigger, and get a coal mine.

Mr. SAYLOR. It is a pleasure to hear you, and to know out here in the mining industry in charge of the Bureau you have a man who has enough faith in this kind of a country to come forth.

Mr. ALLEN. We are pushing water and hydroelectric power to California, and the next thing is atomic energy they are talking about, and the first thing some bright young American will invent some way of putting electricity in bottles.

Mr. DAWSON. I think it is a shame a man of your talents is wasted out in the West. It is your type of man we need back in Washington. He talks the kind of language people might understand.

Mr. ALLEN. That is the way with the chemical names they have for all that stuff. Nobody can understand them. No dictionary contains them. All I say is, if it is worth a damn, and we can use it, let's get it.

Mr. DAWSON. They do not understand it themselves, either.

Mr. ALLEN. I am sure of that.

Mr. DAWSON. You might be interested in this bit of information: We recently had some testimony on this oil shale program to the effect that the Union Oil Co. has now opened their first pilot plant in western Colorado, in Paradise Canyon.

Mr. ALLEN. The pilot plant is at Rifle, Colo. That is shale oil you are talking about, down below Glenwood Springs.

Mr. DAWSON. Paradise.

Mr. ALLEN. Paradise is the home of uranium. Oil shale is up there. They are working on that.

Mr. DAWSON. I understand that, but the Union Oil opened their first pilot plant there about a month ago. I know it is near Rifle but is up in some little canyon.

Mr. ALLEN. Right in the foothills.

Mr. DAWSON. They claim they can produce gasoline from shale oil at competitive rates right now, with the regular gas and oil companies if they are given the same depletion allowance the Government presently now gives to the oil companies. So perhaps with the tremendous reserves of shale oil we have in western Colorado, and Utah, and New Mexico, we will be on the verge of a great development which we hope will work hand in hand with coal. Certainly the energy is here, if we can put the know-how together to develop it.

Mr. ALLEN. The two work together, because the shale oil is all concentrated in one area, where coal is scattered all over the Western States. It is about time coal was getting some depletion and so forth, too. They get nothing. The coal industry gets very little of anything compared with what the oil people get.

Take the oil companies going out and drilling in the Atlantic Ocean. If you saved the money to build one of those plants out there, you could build a plant to distill this coal and get artificial gas and get it as cheap as you get it out of that drilling. I am not kidding. It costs $5 million to put some of those things in. You can put a plant in here, and if tidal waves do not get you, it will go on forever.

I made the statement when they were bringing in natural gas from Canada:

Give me enough money, and I will go to the Dakotas and strip some cheap coal and put it in the cheapest kind of a retort and make gas as cheap as the Canadians.

That is the future of the coal industry throughout the country. I do not know just what happened. It has also always been we have the coal industry to depend on like a big brother. It is about time we were getting into some depleted places like this area down here. They are getting so many people in Denver now that they cannot pass each other on the streets.

Take some plants, as Senator Taylor said, and stick them down here, and other places, some up around Colorado Springs.

I do not think the USGS knows there is 300 million tons of strippable coal as good as that Texas stuff east of Colorado Springs. They did not know there was any coal down in the uranium area.

I know, because when I was a young man I was a nomad—that is the polite name for a tramp—I surveyed all of that country, and knew of that coal. There is no record of it in the USGS.

Now they want power for the development of uranium mines. They had a picture of the world's most important miner coming out of a doghole down there with a wheelbarrow with about 25 pounds of uranium ore. I say it will take 2,142 years to wheel enough out to make one atomic bomb, when you want power.

It happened I worked in there about 30 years ago, investigating the coal. We want more research in the USGS too, and more in the form of an industrial report rather than just geology. All those weird names they use in geology, the average coal miner does not know one from the other. I know a few because I hear them so much. I learn a lot by contact. Even a mule learns just by repetition, you know. So can an Englishman.

Mr. EDMONDSON. Mr. Chenoweth.

Mr. CHENOWETH. I want to congratulate you on a very splendid presentation. I think in all of our hearings, we have never met a more colorful or interesting witness from the coal industry, than you have been here. We know you have not read it out of books, but you have lived with the coal industry, and know what you are talking about.

Mr. ALLEN. In my contacts with the coal miners, we talk a language of our own.

Mr. CHENOWETH. I got the impression from what you said. Tom, you do not think there is any immediate danger of us running out of coal in Colorado.

Mr. ALLEN. I forget, but I think the last figures were 300,000 years for what we use in Colorado, and it is a hundred billion for the whole United States, and figure on using half a billion, and they have a lot of coal like we have up in Montana. And we are all sitting here doing nothing and going out getting jobs picking peaches and things like that, when we ought to be doing something worth while.

Mr. CHENOWETH. I noticed the tonnage for 1956 is up over 1954. What caused that?

Mr. ALLEN. Beginning to build plants, and using it for electricity. It is definitely known our natural gas and oil will not last 50 years. I have never met a geologist who says it will last that time.

Mr. CHENOWETH. What do you predict for 1957? Do you think it will be up?

Mr. ALLEN. Yes. We will have a couple more plants going in. Just a drop in the bucket. It will probably be running two or three hundred thousand tons in the northern field, about 100,000 in the North Park field, and one hundred or fifty thousand in the Cameo field.

Mr. CHENOWETH. The demand is going up?

Mr. ALLEN. Yes, sir.

Mr. CHENOWETH. We found generally in the coal industry the demand is up.

Mr. ALLEN. I do not predict the future, but I predict everybody is going to wake up pretty soon.

Mr. CHENOWETH. You never got any export business here?

Mr. ALLEN. No. It is pretty far from the coast, although I do not see why some of the Trinidad coal could not go by way of Galveston and Houston.

Mr. CHENOWETH. We have tried, but were never able to get any business.

Mr. ALLEN. That is the marketing men who have got to get after that. My job is coal-mine inspector, and I just happen to have this concerning coal by being in continuing contact with it for 30 or 40 years.

Mr. CHENOWETH. I appreciate your statement, Tom. It has been very interesting.

Mr. ALLEN. Thank you.

Mr. EDMONDSON. Thank you, Mr. Allen, for some very fine testimony.

Off the record.

(Discussion off the record.)

Mr. EDMONDSON. Call the next witness.

Mr. CHENOWETH. We will next hear from labor. Mr. Fred Hefferly, representing the United Mine Workers of America.

I understand your father is not here today.

STATEMENT OF FRED K. HEFFERLY, SECRETARY-TREASURER, DISTRICT 15, UNITED MINE WORKERS OF AMERICA

Mr. HEFFERLY. I would like to explain, Mr. Chairman, my father had some previous commitments, and was not able to be here, and delegated me to come down and say a few words in behalf of labor regarding this. We have a few exhibits we would like to offer to the committee, and, if it is permitted, to explain them as we go along.

Mr. EDMONDSON. Mr. Hefferly, will you give your full name?

Mr. HEFFERLY. Fred K. Hefferly, secretary-treasurer of District 15, United Mine Workers of America, covering the States of Colorado and New Mexico.

Mr. EDMONDSON. We are very pleased to have you here before the committee, and we are certainly interested in the viewpoint of the United Mine Workers in this area.

Mr. HEFFERLY. Mr. Chairman, and committee members, from the viewpoint of the coal miners in this area, they have been hit rather

hard, particularly in the last 10 years, or since the end of the Second World War.

As we will note later on by going through our records, we can show area by area just what has happened to the people who have worked in the mines over past years, just what has happened to the industry, because when wo do talk of industry we talk of the employer and the employee together.

It can also be noted from these records that during the time of war, there was a great demand for coal. When wartime comes, the Government does not say, "We will try to find some way to get coal." They simply make a demand on the industry and the industry must necessarily tighten up and go forward and produce that coal for war periods.

Mr. EDMONDSON. Mr. Hefferly, you have supplied to us some very interesting exhibits, and some of them are definitely supplemental to the material previously supplied.

If there is no objection, your exhibit No. 2, entitled "Coal Production in the State of New Mexico," your exhibit No. 3, entitled "Production Workers in Coal Industry Yearly (Colorado and New Mexico)," and your exhibit No. 4B entitled "Mines Abandoned 1949 to June 1955" will be made a part of the record at this point. They supplement material received from previous witnesses, and we are very glad to get this information. It is exactly what we are seeking, and we appreciate your supplying it.

(The exhibits follow, and also by later order of the Chair, exhibit 4 (A) entitled "New Mexico Mines Abandoned since 1944.")

Coal production in the State of New Mexico

Year	Tonnage	Number of men	Year	Tonnage	Number of men
1943	1,804,872	1,890	1950	772,172	1,036
1944	1,753,500	1,752	1951	802,198	833
1945	1,397,414	1,334	1952 (approximately)	727,357	793
1946	1,315,199	1,320	1953 to August (approximately)	480,000	278
1947	1,430,532	1,257	1954	143,216	174
1948	1,416,099	1,350	1955	153,416	179
1949	,390,032	1,371			

Production workers in coal industry yearly (Colorado and New Mexico)

Year:	Number of production workers	Year—Continued	Number of production workers
1943	7,428	1950	4,497
1944	7,297	1951	4,075
1945	6,573	1952	3,683
1946	5,887	1953	3,730
1947	5,908	1954	2,978
1948	6,043	1955	2,934
1949	5,042		

Mines abandoned since 1944

Coal company	Employees	Tonnage	Coal company	Employees	Tonnage
Boulder Valley Coal Co	146	153,449	Peerless Coal Co	5	2,750
Highview Coal Co	6	1,582	Victory Fuel Co	16	24,695
Louisville-Lafayette Coal Co	106	150,942	Toller Coal Co	60	29,000
Rocky Mountain Fuel Co	56	82,047	Bear Canon Coal Co	47	63,670
Liley & Merlino Coal Co	8	10,537	American Smelting & Refining Co	148	153,801
National Fuel Co	58	57,536	Taylor Coal Co	15	8,325
Pluto Coal Co	16	16,827	Victor-American Fuel Co	156	171,114
Regal Coal Co	22	15,794	Dick Coal Co	54	60,984
Independent Coal Co	5	6,865	Green Canon Coal Co	8	4,932
Winton Coal Co	8	11,087	Hall Brothers Coal Co	67	78,922
Franceville Coal Co	12	14,551	Lavato Coal Co	11	5,100
Pikeview Coal Co	139	177,354	Huerfano Coal Co	90	80,897
Caldirola Coal Co	31	36,107	Thor Fuel Co	22	16,673
Canon Zenith Coal Co	8	6,122	Palisade Coal Co	9	4,202
Chandler Creek Coal Co	26	31,316	Mt. Street Coal Co	24	51,300
Manley Coal Co	10	5,601	Domestic Coal Co	21	77,793
Florence Coals, Inc	12	3,864	Vanadium Corp. of America	13	22,328
Peacock Coal Co	8	3,189	United States Vanadium Corp	14	19,167
Cribbs-Goodman Coal Co	32	38,800	Hayden Coal Co	137	156,623
C. F. & I. Corp	128	126,783	Keystone Coal Co	110	123,981
Royal Gorge Coal Co	18	16,598	McGregor Coal Co	5	13,144
South Canon mines	24	32,393	Moffat Coal Co	195	227,429
Alpine Fuel Co	46	50,319	Victor-American Fuel (Pinnacle)	128	148,377
Crested Butte Coal Co	19	8,921	Ramsey Coal Co	14	22,959
C. F. & I. Corp. (Crested Butte)	150	200,351	Sleepy Cat Coal Co	6	1,751
Black Beauty Coal Co	30	19,413	Victor-American Fuel Co. (Wadge)	89	109,197
Butte Valley Coal Co	69	69,815	Consolidated Coal & Coke	99	133,284
Calumet No. 2 Coal Co	116	173,642	Boulder Valley Coal Co	64	103,451
Gordon Coal Co	95	121,367	Rocky Mountain Fuel Co	156	268,564
Kebler No. 2 (C. F. & I. Corp.)	171	175,603	Diamond Coal Co	5	2,516
Major Coal Co	42	33,867	Imperial Coal Co	93	164,326
C. F. & I. (Robinson)	138	165,614	Clayton Coal Co. (Morrison)	72	120,851
Taylor Coal Co	84	89,164	Russell Coal Co	54	48,638
Caprock Fuel Co	9	15,683	Shamrock Coal Co	60	62,272
Leyden-Lignite Fuel Co	102	124,477			
Castle Coal Co	9	8,049			
Monarch Coal Co	6	1,532	Total	4,037	4,844,897
O. K. Coal Co	5	4,720			

Mines abandoned since 1949

Name of company	Number of workers in 1943	Date abandoned
Victor-American Coal Co., Pinnacle Mine	132	March 1949.
St. Louis, Rocky Mountain & Pacific Coal Co.:		
Van Houten Mine	87	April 1949.
Brilliant Mine	169	April 1949.
Leyden-Lignite Coal Co	110	February 1950.
Phelps-Dodge Corp., Stag Canon Mine	277	April 1950.
Defiance Coal Co	151	February 1952.
Hayden Coal Co., Haybro Mine	143	February 1951.
Victor-American Fuel Co., Wadge Mine	104	March 1951.
Gallup-Gamerco Coal Co	380	April 1951.
Victor-American Fuel Co., Delagua Mine	196	November 1951.
Centennial Coal Co	150	March 1952.
Colorado Fuel & Iron Corp., Nonac Mine	141	April 1952.
St. Louis, Rocky Mountain & Pacific Coal Co., Koehler Mine	[1] 420	August 1953.

[1] Laid off.

Mines abandoned since 1953

Name of company	Number of workers 1943	Tonnage	Date abandoned
Stove Canon Coal Co	6		January 1953.
Arrowhead Coal Co. (Moffat mine)	217	233, 233	February 1954.
The Colorado Fuel & Iron Corp.:			
Crested Butte mine	164	210, 019	November 1952.
Kebler mine	179	170, 305	December 1953.
Pictou mine (opened in 1946) 1953	66	56, 599	January 1954.
Morley (metallurgical)	321	242, 615	May 1956.
Louisville Lafayette Coal Co	110	135, 987	August 1953.
Minnequa Fuel Co	78	54, 421	April 1954.
Major Coal Co	22	20, 437	July 1954.
Graden Coal Co	46	75, 065	January 1955.
Chandler Creek Coal Co	20	14, 342	March 1955.
Bear Canyon Coal Co	41	42, 946	September 1955.
William E. Russell Coal Co	38	59, 444	Do.
Albuquerque & Cerrilos Coal Co	120	(?)	March 1955.

In addition to the above list, we show 61 mines of a small nature which have closed down during the period, October 1952, and January 1957.

New Mexico mines abandoned since 1944

Coal company	Employees	Tonnage
St. Louis, Rocky Mountain & Pacific Co.:		
Van Houten	70	[1] 1, 111, 907
Brilliant	136	
Koehler	191	
Biava Coal Co	7	[2] 552, 112
Gallup-American Coal Co	294	
Gallup-Southwestern Coal Co	38	
Defiance Coal Co	105	
Albuquerque & Cerrillos Coal Co., (Lamb and Jones Mines)	111	[3] 107, 664
Total	952	1, 771, 683

[1] Approximate tonnage, 3 mines.
[2] Approximate tonnage, 4 mines.
[3] Approximate tonnage, 2 mines.

NOTE.—At the beginning of 1954 the State of New Mexico has approximately 200 coal mines remaining in production.

Mr. HEFFERLY. Thank you, Mr. Chairman. You have previously received the information that is on the first sheet. You will notice a tremendous decline of coal produced from 1937 until we hit the war years of 1940, 1941, 1942, 1943, 1944, and 1945.

Following the end of the war in 1945, we have lost 2 million tons of production. We have continued to decline to where we are now down to just a short small bit over 3 million tons in 1956.

I believe had it not been for a stoppage in the steel industry during 1956, we would have exceeded the 1955 tonnage report. There were 2 months of tonnage lost at C. F. & I. mines, and the Thompson Creek mine, which are producing metallurgical coal.

The second page lists our New Mexico production from 1943 through 1955. The 1956 production was unavailable. However, New Mexico is no longer and can be termed no longer a coal-producing State at this time.

There are at the present time approximately 100 men still working in the coal industry as compared to probably 2,000 in 1943, some 13 years ago.

However, we do have a bright note coming into the picture in New Mexico where, because of the Kaiser Steel Corp.'s purchase of a half million acres of metallurgical coal in the Raton area. In 1951, we had approximately 800 members of our organization working in the Raton area, but due to the C. F. & I. opening their new Allen mine, they stopped the purchase of coal from Raton, and within 2 years' time we lost from 800 down to about 30 men in that area.

During that time it was necessary for us to call on the Government to furnish commodities to feed the families who were out of work, not only in the Raton area, but in the various other areas in the State of Colorado.

Our county breakdown will show, I think, more specifically what has happened to us throughout the area.

Taking Boulder and Weld Counties, on page 4 we see that 20 years ago following the first depression we were producing better than 2 million tons of coal in those 2 counties; had 44 producing mines, with approximately 2,500 men working in them.

In 1956 we have dropped down to 425 employees, and tonnage has gone down to 643,000 tons, with 6 producing mines left out of the 44.

Most of the coal from Boulder and Weld Counties—I will say all of the cool from those counties is lignite type, and used primarily for powerplant purposes, and domestic coal around Denver.

Boulder and Weld Counties, I might explain, are around 20 miles north of Denver. So they get domestic coal burned in Denver plus some of the powerplants throughout that area.

There was an opportunity during the past few years for this field to have been built up by, we feel, some help from the Federal Government if, when the various governmental plants were built in that area, some of them had been placed on a usage of coal for heating in these plants rather than having been connected onto gaslines.

Our last figures from the organization show that we have a serious shortage of gas and probably fuel oil coming up within the next 20 years, and here we are building new installations, new plants.

Take the atomic-energy plant just north of Denver, a huge plant, which could have burned a lot of coal cheaper for heating purposes. There was no consideration given to coal as a fuel in that plant.

The new Glenn L. Martin plant, which is primarily a defense plant, near Denver, and there was no consideration given to coal for that plant.

We have Fort Carson near Colorado Springs, which is being enlarged and enlarged and enlarged. They have been using 30,000 tons of coal, and I understand now they are converting to gas, which will mean a further reduction in the use of coal from the northern fields, plus a reduction in the use of coal from the Fremont County and Colorado Springs area.

There is also our new Air Force Academy being built north of Colorado Springs; no consideration given again to the use of coal as a fuel there. We understand that the powers that be in Washington gave absolutely no consideration to whether it was going to cost more to use coal or more to use gas, but went right in with the gasline, and the gasline will be in there shortly, even before the plant is built.

We have copies of studies that have been made in the past, particularly in the State of Ohio—I suppose your committee has been supplied with a copy of this—where a research program was conducted through the State of Ohio, and shows that in school buildings, the cost per pupil of coal for heating purposes is the cheapest fuel you can use. Still all of the schools are going to a gas proposition for heating.

We find that there has been very little assistance on the part of either the State or the Federal Government to assist the coal industry where they were in a position to assist them.

We had a coal law in the State of Colorado until 1953 that all State institutions were required to use State coal, Colorado coal, for heating purposes. That law was repealed in 1953 when they were putting up some new buildings. The State highway department had a million-dollar or $2-million building going up and they decided they did not want to use coal. The coal was there available, it was there cheaper, but because some people have an idea for gas to be used as a fuel is cheaper, gas was used. They do not realize that for every dollar they spend for gas that money that belongs in the State of Colorado, that could be used, is being shipped out. Primarily the gas could be used for other purposes much better than for heating, because they do have such a shortage of gas.

On page 5, we show what happened to Fremont County from 1937 to 1956. From 46 producing mines—and there were some large mines there—and a half million tons of coal a year, and 977 employees, they have gone down to 112 men working in the mines in 1956, and 21 producing mines left. And in none of those producing mines, with the exception of possibly 1, do they have over 5 or 6 employees. In fact, they are no longer employees. As probably Representative Saylor will understand, and some of the other gentlemen, we have a new type of coal mining now in Fremont County. One gentleman owns the coal and leases it to five coal miners to mine, and that is where the production comes from in Fremont County. We feel, with some assistance by the Government to the coal industry, instead of the operators leasing their mines out to 4 or 5 men—and they make a mere pittance a ton on their production—that these mines could be established, there would be several big mines in that county that would again employ 400 or 500 men.

We go to page 6, Gunnison County.

From 1937 to 1956, we have dropped from 660,000 tons to 303,000. There has been a definite movement over there recently on the part of the United States Steel Corp., who has purchased the Somerset and Oliver mines, and they will become metallurgical mines in the near future. We have a bright outlook so far as Gunnison County is concerned, in the future.

Our membership has dropped from 668 in those 19 years to 235, and from 15 mines they have 10, with 2 large mines and 8 small mines operating in the area there.

On page 7 we have Huerfano County. In 1937, we had 1,247 men working there and producing 770,000 tons of coal. During the war years, they went up to over a million tons for 2 years, practically for 3 years. For 3 years we got better than a million tons of coal each year out of Huerfano County. It is pitiful now to look at the figure of

63,000 tons for the year 1956, with 71 employees working in those mines, and the number of mines deteriorating from 33 to 9.

Page 8 gives us the Routt County in northwestern Colorado. In 1937 there were 1,310 men working, with 25 operating mines there. They are down to 255 employees, and 8 mines, and not a large mine included among them, unless we would classify a 120-man mine at Mount Harris, which is still operating.

The record shows we produced over a million tons of coal in that area in 1937. During the war years from 1942 through 1945, again in 1947, over a million tons of coal came out of that area, and there is much of the domestic coal for Denver that comes from Routt County. I think that is probably due to the sales organization of the Colorado Fuel & Iron Corp.

From 25 mines, they are down to 8 producing mines, with less than half a million tons of coal coming out of there.

In Las Animas County, production reports show for 1937 a million and a half tons of coal, approximately; 1,916 employees and 37 producing mines, which is down now to 16 producing mines. And, gentlemen, the only 2 of any consequence are the Colorado Fuel & Iron Corp.'s 2 properties that are left. The rest are small truck mines who attempt to sell coal locally, and in competition.

Out of the 1,145 employees in the operation down there, roughly—I am talking about production workers—about a thousand of those would be coal miners, which leave us about 100 or 150 men in other small miners around Las Animas County.

There is a great need in that area. In southern Colorado, northwestern Colorado, central Colorado, we have a great need for powerplants to be established. They are doing something in the central Colorado area. The public service company is enlarging their Fremont County plant, enlarged it several years ago, and, as I understand, have a large program on now to rebuild again.

In southern Colorado there is not a powerplant of any consequence between Pueblo and Trinidad, and the lines, as I understand it, do not reach that far.

We have the Walsenburg area. Our people are fighting to stay on their feet in the coal industry in this State. About a year and a half ago there was some talk of Cotarco Corp. coming into the Walsenburg area to employ 1,000 or 1,500 men in a char plant, a byproducts plant. The Chamber of Commerce of Walsenburg was in full cooperation, and the city mortgaged themselves, as I understand it, for over $2 million to buy property in that area and to lease that property, I think free, to this corporation to come in there and set up a $10 million plant. The city has been mortgaged and nothing has been done in that area yet. We have heard nothing more of Cotarco since we had the big celebration where the Governor went down to break ground, along with the leaders of the chamber of commerce and industry and labor. Ground has been broken and the city mortgaged for $2½ million, and that is the last we heard of Cotarco.

Mr. DAWSON. In other words, both the ground and the city is broke.

Mr. HEFFERLY. I think that would explain it very well.

I cannot understand what has happened to the company. We cannot find out what has happened to Cotarco. We do know they had large brochures printed and distributed all over the State. Those

people in that community were willing to mortgage themselves to help industry to come in there to put the coal industry back on its feet, and it has not helped.

The city then went out and purchased a powerplant. That was one of the deals and arrangements I understand between Cotarco and the city. The city did buy the powerplant. They need a lot more money to reconstruct it before it can become a powerplant that can be run on an economical basis.

We have a great need for a big powerplant in southern Colorado, because without power we know that industry cannot come in. I understand the Colorado Fuel & Iron had to make a loan to a small powerplant in Trinidad, Colo., before they could get power enough to run their new mine.

It is a sad commentary on someone in this area, or in the Federal Government, when industry and the people are behind the need for something, we just cannot seem to get to the point where we can have a meeting of the mind to do anything about it.

Gentlemen, it is hard for us to explain to these coal miners why we are lending $4 billion per year to foreign governments, when we cannot get a few millions to help out our own people in this country. It would not take too much in this part of the country to get the coal industry back on its feet. We need the financing, we need the help from people outside the State of Colorado to do it.

We have a brighter picture now than we had in 1954, when we had reached the low ebb, I think, in the coal industry in the State for many years. Public Service Corporation is building a new plant north of Denver which we are going to service this year. They are building, I understand, an immense plant at Cameo, Colo., which will use many thousands of tons of coal. There is an REA plant being built at Nucla, Colo., to help service that area over there.

There is a definite need for powerplants in the Durango area. There is a definite need for one in southern Colorado and in eastern Colorado.

We need these things, but cannot seem to get any job done by private enterprise. I think they are doing all they can, but are limited, and we know that we cannot quarrel with the electric companies, because they only have so much to go on. But we have a hard time explaining to our membership and people in this area why so much money is being spent in other parts of the world and we cannot get anything here to help our own people.

In northwestern Colorado, Routt County, we have had to have the Government to requisition commodities to come in. The people up there do not work long enough in a year to go on unemployment compensation when a mine does shut down. So we must necessarily go for commodities for the people, and they string around through the ranches looking for work here and there.

The town of Oak Creek itself is another instance of the tenacity of the people in the Colorado area to cooperate. Oak Creek used to be one of the most thriving coal mining towns in the State of Colorado, with over a thousand people working directly in the mines. Today we have a small strip mine there employing about 30 men. We have the Keystone Mine. It has gone out of business 3 times, and the last time 5 businessmen in the town of Oak Creek put up $5,000 apiece to

reopen the mine and give those coal miners a job for the winter months. We think that is going pretty far to hold on and shows that the people want to hold on, and the community wants to hold on, but we need some help from somebody, and I do not know where else we can go to get it unless it is to the Federal Government. That is the only place we can go to get it.

For Representative Saylor's information, I think I would like to elaborate a little bit on safety, because that also affects our people, and affects this committee.

Five years ago, in 1951, we were able to have enacted in the State of Colorado the Federal Coal Mine Safety Code as the law of the land in the State of Colorado.

As you know from Mr. Allen's report, during the year 1950 we had 295 lost-time accidents, with 11 dead in the mines. We never previous to that enactment had less than 11 men dead in the mines each year. Since 1951, as pointed out by Representative Saylor, we have come to where last year we had 2 dead men to take home to their families.

I think that each Representative in the House could well study the safety program. And we do not have an elaborate State inspection department; we have the Federal Inspection Department. We have 4 men who are connected with the State Coal Mine Inspection Department, Mr. Allen and 3 State coal mine inspectors, for 150 mines. Last year we had 65 lost-time accident reports in the coal mines in Colorado, and only 2 dead.

We hope to improve on this record in the future, but you need strong State laws to get that for the people who work in the mines, and that is the only way it can be gotten.

I want to thank you gentlemen for having the opportunity to appear here this morning. I think you are one of the long lost brothers we have been looking for out here for many, many years to help this industry, not only here, but all over the United States, because it is sick and needs some help.

There has always been some way to help other industries, but for some reason the coal operators have never gone to Washington with high-priced lobbyists to get something to help the coal industry.

We are thankful that we do have men in Congress now who are interested in this industry from the standpoint of the industry alone, and what can be done to help hundreds of thousands of people and families in this country.

Thank you.

Mr. EDMONDSON. Thank you for your very fine statement.

A moment ago when permission was obtained to insert several of your tables in the record, I overlooked exhibit 4 (A), which is "Mines Abandoned Since 1944 in New Mexico." If there is no objection that will also be made a part of the record at the same point.

Mr. HEFFERLY. I would like to point out that on these records, due to the shortage of time we had in trying to prepare something for the meeting, not being notified until Thursday of the hearing, I was unable to carry them forward further than 1953, the abandonment of the mines. Since that time, we have had approximately 15 or 20 more, I would say.

Mr. EDMONDSON. I certainly think on the notice that you had, you have done a splendid job.

I might say with regard to the notice, that we have had some difficulty scheduling field trips at times, because of the calendar of the House, and it has made it difficult for us to set up a date until just a few days before the hearing takes place, because there is a possibility of conflict with business on the floor, and we have to avoid that.

Mr. HEFFERLY. Might I say, I think you have done a wonderful job in coming here. If you had just called us last night we would have been tickled to death to be here this morning.

Mr. EDMONDSON. Thank you very much, and you have certainly contributed substantially to the kind of information we need.

Mr. Metcalf, do you have any questions?

Mr. METCALF. No questions.

Mr. EDMONDSON. Mr. Saylor, do you have any questions?

Mr. SAYLOR. Yes, Mr. Chairman, I do.

First, I would like to ask permission for Mr. Hefferly and his organization, if they have any figures that supplement the report which they would like to fill in, they be permitted to fill in and send to the committee. We would like to have up-to-date information.

Mr. EDMONDSON. We will be very happy to have them do that.

Mr. HEFFERLY. We will be glad to submit the information on the abandonment of mines, both in New Mexico and Colorado since the information we have. (See pp. 398–399.)

Mr. EDMONDSON. On that point: I think you made mention of a report made by the State of Ohio on the use of coal for heating schools in Ohio.

Mr. HEFFERLY. Yes, sir.

Mr. EDMONDSON. If you have an extra copy of that report we would certainly be pleased to have that for the committee's information.

Mr. HEFFERLY. I thought I had one.

Mr. EDMONDSON. If you do not, and could mail it to us, that would be fine.

Mr. HEFFERLY. I will be glad to do that, sir.

Mr. EDMONDSON. Thank you.

Mr. HEFFERLY. I have one copy here. I would like to supplement it later with an older copy from Ohio. This is from the more recent survey as to what is being done by the coal industry itself.

Mr. EDMONDSON. If there is no objection, this will be made a part of the committee files.

(The documents will be found in the files of the committee.)

Mr. SAYLOR. Mr. Hefferly, am I correct in the figures that I have determined from the charts that you have presented here that there were 282 mines operating in Colorado in 1937, and in 1956 there were only 136 mines?

Mr. HEFFERLY. That is correct.

Mr. SAYLOR. Or a loss in that 20-year period of 146 mines, or more than half?

Mr. HEFFERLY. That is right.

Mr. SAYLOR. And the miners have dropped off from 9,400 in 1949 to 2,667, or substantially a three-fourths drop in the number of miners?

Mr. HEFFERLY. That is correct.

Mr. SAYLOR. Yet in that same period your coal has dropped only from 7,215,000 tons to 3,296,000 tons, or roughly a drop of 4 million tons?

Mr. HEFFERLY. That is correct.

Mr. SAYLOR. In other words, in that period of time the per-man production of coal has increased tremendously in the State of Colorado?

Mr. HEFFERLY. That is correct, sir.

Mr. SAYLOR. That has been due to the mechanization that has occurred in the mines?

Mr. HEFFERLY. Yes. As I recall, the mechanization of mines was not started until late in Colorado, and that was on the basis of the first type of mechanized equipment—duck bills, and so forth. We are now going into joy loaders big scale with the usage now of some of the mole machines that they have. That mechanization started approximately around 1937 or 1938 in the State, Mr. Saylor.

Mr. SAYLOR. You mentioned a number of Government installations that are not using coal. That is despite the fact—I am surprised to find—the commission which the President appointed to report on the coal industry reported that all Federal installations, new installations, were to use coal, and that those that were planning any conversion at all were to convert to coal.

Mr. HEFFERLY. Representative Saylor, the atomic plant north of Denver is using gas. The new Air Academy going up now, just starting construction, is contemplated to go to gas.

At Fort Carson, I understand from our representatives in that area, they are now preparing to convert from coal to gas. ENT Field at Colorado Springs, I understand, is on a gas basis. We have nothing in this area. None of the big newer installations have ever even discussed the usage of coal.

Mr. SAYLOR. I can say to you that yesterday afternoon, when we went over the site of the Air Force Academy and were informed of the fact they were going to use gas, I could not believe my eyes when, within sight of the ground, there is an operating coal mine.

Mr. HEFFERLY. Mr. Allen explained that just east of that coal mine there are millions and millions of tons of coal that could be used. Transportation of that coal could be done cheaply by truck to the Academy. But the pipeline will probably be in to the Academy before the Academy is built.

Mr. SAYLOR. I do not want to get into any fight out here with the towns in Colorado, but as we went by a new powerplant at Colorado Springs yesterday, I noticed some coal bunkers there, and I was very hopeful. I thought this was a place they were using coal. But I was informed that, even though they put the coal bunkers in, they are burning gas for the production of electricity.

Mr. HEFFERLY. That is right, and they intend to enlarge that plant shortly, I understand. It will be burning gas, too, on an enlarged basis.

Mr. SAYLOR. Let me ask you, Mr. Hefferly, a matter of opinion. In view of the fact that coal, as specified by Mr. Allen, is actually the backbone of energy that has been required in both World War I and World War II, what would be the possibility of the operators and the miners being able, with rapid notice, to get into production the 146 mines that have been closed down since 1937?

Mr. HEFFERLY. I think, Mr. Saylor, it would be very doubtful that any of these mines could be reopened. The nature of the mines in this area, as it is in most of the eastern areas also, is that our roofs

are not good, and the mines abandoned usually have the rails pulled up. We have caves that would prevent any going back in. So it would be a matter of opening new mines as a general rule where you have a mine of any extensive operation. And attempting to open mines takes time. I am sure you understand it takes time to start a new mine. The Allen mine of the C. F. & I. was originally started in 1952, but actual peak production still has not been reached in that mine.

Mr. SAYLOR. So far as defense purposes, then, are concerned, even though some of the coal that has been left in place might be recovered, for all practical purposes these 146 mines have just been written off the books?

Mr. HEFFERLY. That is it, I think, so far as we are concerned. I might say we are out on a limb, but that is about true.

Mr. SAYLOR. Thank you very much.

Mr. EDMONDSON. Mr. Dawson.

Mr. DAWSON. No questions.

Mr. EDMONDSON. Judge Chenoweth.

Mr. CHENOWETH. I am not going to take the time to ask you all the questions I would like to, or get your observations on many of the features of this hearing.

I was interested in your comment about the Federal Government assisting the coal-mining industry. That is what we are trying to determine in this hearing.

Mr. HEFFERLY. Yes, sir.

Mr. CHENOWETH. That is, we are trying to determine how to increase the market for coal.

As far as a research program is concerned, judging from what I have heard in the other States, I would estimate that probably a total of $30 million a year is being spent now on research by private companies, by the Federal Government, by the Bituminous Coal Research, all of these different organizations. They have not yet come up with anything that has materially increased the consumption of coal.

Mr. HEFFERLY. Representative Chenoweth, my idea regarding the Government help is now we are at the bottom and want to start up.

Mr. CHENOWETH. Your picture is a little better now?

Mr. HEFFERLY. That is correct.

Mr. CHENOWETH. And the prospects of the industry are better?

Mr. HEFFERLY. That is correct.

Mr. CHENOWETH. We have found the demand for coal has increased in other States. Is that true here?

Mr. HEFFERLY. It is; yes.

Mr. CHENOWETH. And men are going back to work?

Mr. HEFFERLY. They have, to a certain extent. Last year, of course, the record showed production was a little short of 1955, due to some unavoidable circumstances. However, I say this: The Government installations we have here now—we talk about a shortage of gas coming within the next few years. I know that. Still I cannot understand the Governing putting up all the new installations around Denver and all burning gas when coal is available, and coal is sick, and coal could be used in those installations.

Grand Junction area is the same way. Mesa County area has millions of tons of coal within 10 miles of the new Government hospital

over there. I understand they are partly on coal and partly on gas. I am not sure about that.

But they have the atomic plant at Grand Junction and they are not burning coal.

Why does not the Government help us to this extent?

I understood Representative Saylor to say that the installations were supposed to be on coal, but they are not. I do not understand why they are not if they are supposed to be.

Mr. CHENOWETH. Fort Carson has been using coal?

Mr. HEFFERLY. They have been.

Mr. CHENOWETH. The Pueblo Ordnance Depot is using coal?

Mr. HEFFERLY. I am not sure about this.

Mr. CHENOWETH. I think that is correct.

Mr. HEFFERLY. I know Fort Carson uses 30,000 or 40,000 tons a year, and that is a lot of coal for the industry. If we had 10 such that means a lot of coal for our people out here.

Mr. CHENOWETH. I want to thank you for the figures you furnished the committee, because it is just the information we are anxious to get in a detailed way of what happened to the coal-mining industry in different counties of Colorado. It is very interesting, and very helpful. We are very grateful to you for it.

Mr. HEFFERLY. Thank you.

Mr. CHENOWETH. That is all.

Mr. METCALF. Mr. Chairman, since Mr. Hefferly has filed this statement on the use of coal in heating schools, I will say it is ironic to note this is a publication of the National Coal Association, and their office is 802 Southern Building, Washington, D. C., and we have to come out to Pueblo, Colo., to have this material supplied to us; not by the National Coal Association, but by the United Mine Workers. I appreciate your furnishing the material.

Mr. HEFFERLY. The other one I am going to submit is also from the National Coal Association. We are trying to sell coal to a lot of these small counties, where they are considering converting to gas, and we can use these figures to show coal is in itself cheaper to use in heating than gas.

Mr. EDMONDSON. You certainly made a strong point in regard to the use of coal in Government installations in areas where coal is produced.

Call the next witness, Judge Chenoweth.

Mr. CHENOWETH. We will now have the group from Utah, and I am going to ask my colleague, Mr. Dawson of Utah, to introduce them to you, and they will take the next half hour.

Mr. DAWSON. If it is agreeable with the chairman, we might have the whole Utah group up here together and coordinate our efforts.

I might ask if Mr. Brinley is in the audience, the regional representative of the United Mine Workers.

I am informed he could not come. I had invited him to come.

I will ask Mr. Harold Mays, regional representative, I understand, of Bituminous Coal Institute out of Washington, who covers the western part of the country, to take one of the chairs; and Mr. W. H. Sloan, who represents the Independent Coal & Coke Co.

Mr. SLOAN. I am representing the Utah coal operators.

Mr. DAWSON. He is also connected with the Independent Coal & Coke which, as I understand it, produces a million tons annually. And you are representing the Utah Coal Operators Association?

Mr. SLOAN. Yes.

Mr. DAWSON. And Jack Ehrhorn, industrial development director of the United States Fuel, at about three-quarters of a million tons of production annually.

I believe it was agreed that Mr. Sloan would be the first witness, then we will hear from Mr. Ehrhorn, and Mr. Mays is sitting in merely in an advisory capacity.

If it is agreeable, Mr. Sloan, you can proceed.

STATEMENT OF W. H. SLOAN, REPRESENTING UTAH COAL OPERATORS ASSOCIATION, SALT LAKE CITY, UTAH

Mr. SLOAN. Mr. Chairman, this statement is not very long, and I would like the privilege of reading it, if I may. Then if you want to ask any questions, I will be glad to answer them.

Mr. EDMONDSON. Go right ahead, sir. We are very pleased to have you with us, and to have your statement given to the committee.

Mr. SLOAN. Gentlemen, as we understand it, this hearing is being held for the purpose of developing a research plan for the future of the coal industry. There is little question but that such a plan is needed and desirable. Until such a program is put in operation, the next logical question to ask is: How can the commercial coal mines in the West continue to remain in business to be in position to meet the demand for coal supposed to be needed by the year 1975 or sooner.

Looking at the situation from this point of view, we assume it is also not out of order to bring up at this hearing some of the things that are now happening or will happen very shortly to the commercial coal operators in the west.

Gas has already cost the commercial coal industry of the State of Utah over 2 million tons of coal.

Gas now is or will be shortly in use in the following industrial plants located in the States of Idaho, Oregon, and Washington:

	Tons of coal replaced
Cement plant, Inkom, Idaho	35,000
Utah Idaho Sugar Co., Blackfoot, Idaho	20,000
Utah Idaho Sugar Co., Toppenish, Wash	30,000
Carnation plant, Nampa, Idaho	20,000
Amalgamated Sugar plant, Nampa, Idaho	25,000
Amalgamated Sugar plant, Nyssa, Oreg	25,000
Cement plant, Spokane, Wash	35,000
Cement plant, Metaline Falls, Wash	35,000
Magnesite plant, Chewelah, Wash	35,000
Paper pulp or wallboard plant, Lewiston, Idaho	25,000
Cement plant, Seattle, Wash	30,000
Cement plant, Concrete, Wash	30,000
Gas plant, Tacoma, Wash	8,000
Government airfield, Fairchild, Wash	35,000
Government, Fort Lewis, Wash	50,000
Total	438,000

There are two more that we left off. One is the university at Seattle and the other is the university at Pullman. I think Pullman will use 20,000 tons, and I think the university at Seattle will use 30,000 tons.

Mr. DAWSON. Could I ask at that point: The reason for referring to the States of Idaho, Oregon, and Washington, is due to the fact that is the market for most of the Utah coal; is it not?

Mr. SLOAN. We are rying to keep from being placed in the same position that all of the rest of the States are already in, due to loss of business to gas, and that is where our market is.

This is the list of plants which have already, or will very shortly put in gas. There is little doubt but that more plants will go to gas, not to mention the loss of small commercial and the domestic users of coal.

Much of this industrial gas being offered or sold in the States of Idaho, Washington, and Oregon is at a price of around 31 to 32 cents per thousand cubic feet. Coal, to be able to compete, would have to be laid down at a figure between $7.75 to $8 per ton. This is impossible with the present production costs and freight rates in effect.

We have had increases in wages over the past 4 or 5 years of $6 per day.

We have had 3 freight rate increases the past year or so, averaging around 65 cents per ton to most points where we must now compete with gas. Incidentally, I believe the railroads are asking for a further increase.

You see many press notices and hear much talk of the wonderful future of the coal industry. If all of the plants now using gas or proposing to use, were to use coal, the immediate future of the commercial coal operator would indeed be bright. Without this industrial tonnage, as well as the loss in commercial and domestic business, the future of the commercial coal operator in the West is far from favorable or bright.

In fact, one wonders what would happen if millions or even thousands of tons of coal were suddenly needed, for one reason or another; where would this coal be available? If gas continues to take the coal tonnage from the commercial coal operators, it would be utterly impossible to furnish the large amount of coal needed without a long delay. Many mines would have to be reopened, if such a thing were possible, or new mines developed at a terrific cost. That would be approximately $10 a ton for every ton you cut. Think of all this in terms of what would be the situation in the event of a world war.

Montana has almost gone out of the commercial coal business. The same thing can be said about the commercial mines in northern and southern Wyoming. It is also true in Colorado and New Mexico. A recent press notice states that the mines in the Roslyn coal district of Washington will have to be closed down if they do not secure a powerplant to use coal from this district. Utah is left, and considering they way gas has taken the coal tonnages in Utah and will apparently also take coal tonnages in Idaho, Oregon, and Washington, certainly many commercial operations are not going to be able to survive.

What we are talking about are commercial mines—not captive mines which produce coking coal for steel mills or other purposes where coking coal is necessary. There is considerable confusion on this point in the minds of many people who have the opinion the coal industry is out of the woods. Captive coking mines, or producers producing coking coal, are doing very well and no doubt will continue to do so—both for steel mills and export coal. This is far from true for commercial mines in the West, producing noncoking coals.

For the past year or so Utah mines have been able to export considerable tonnages of noncoking coal to Korea. It has helped no end in keeping commercial mines working. We are now told that within 2 years diesel power will replace steam power in Korea. If this comes

to pass it means mines in Utah producing noncoking coal will lose practically all of the export tonnage. Diesel power has already cost the Utah operators thousands of tons of coal business, not to mention what gas has and will continue to take in the States of Utah, Oregon, Washington, and Idaho.

Last year Utah exported 418,000 tons of coal to Korea, that is, all of the Utah district.

There has been much talk about new electric powerplants in the West, creating a large demand for Utah coals, or maybe coals from other States. If and when all of these plants are built, and they do use coal, it will surely help the coal industry in the West. The point to remember is, when will all of this come to pass and will it be soon enough to save many of the commercial coal operators in the West? Will the research plan itself be accomplished soon enough to keep many commercial mines operating?

Right at this moment, while the Government is holding these meetings to try to find a way to help the coal industry, they are planning the use of gas at some of their largest Army camps, replacing thousands of tons of coal now being furnished by the commercial mines in the West. Fairchild, Wash. has already gone to gas and we are told Fort Lewis, Wash. is getting ready to do the same thing. Fairchild used about 25,000 to 27,000 tons of coal. Fort Lewis uses over 50,000 tons of coal.

Nobody is in position to argue that gas may not be the cheapest fuel at many points where they plan to change to gas or have already done so. The point is, what will gas cost 3, 4 or more years from now. It will probably cost more, if it is available at all. In the meantime what happens to many of the commercial coal operators, and how does he survive until such time as he may be needed, and needed badly. Gentlemen, many of them may not be in business when that time arrives, unless something can be done—and quickly—to enable him to survive.

The gas people go merrily on their way taking away from the commercial mine operator his coal tonnage, at prices way below his ability to compete, when you take into consideration his present costs of production to which must be added the freight rates. The gas rates being made by the gas people to many industrial users are no doubt below their own costs of production in many instances.

All that has been stated above has been said many times before, and will probably be said many times more, in the hope the commercial coal operator can convince those who should be concerned how serious the situation is or can become. Maybe nobody cares or is particularly interested in what happens to many commercial coal operators.

That is signed by W. J. O'Connor, vice president of the Utah Coal Operators Association.

Mr. DAWSON. As I understand it, you are submitting this paper on behalf of Mr. O'Connor?

Mr. SLOAN. And the Utah Coal Operators Association.

Mr. DAWSON. Mr. Chairman, I think it might be just as well to hear from Mr. Ehrhorn at this time, and then go ahead and interrogate the witnesses as a group.

Mr. EDMONDSON. Very well. You may proceed, Mr. Ehrhorn.

STATEMENT OF J. M. EHRHORN, UNITED STATES FUEL CO., SALT LAKE CITY, UTAH

Mr. EHRHORN. Mr. Chairman and distinguished guests, may I express appreciation of my company for this opportunity to present its case to you. We would like to present a condensation orally at this time, and then follow with a written statement. (See p. 414.)

Mr. EDMONDSON. We will be very glad to have anything you care to add to your testimony. If you will supply it to Congressman Dawson, I am sure he will see it gets in the record of the committee.

Mr. EHRHORN. Thank you.

The U. S. Fuel Co. was organized back in 1912 as a consolidation of four small companies operating in the Carbon County area of Utah, some 19 miles west of Price.

It is interesting to note that in the annual statement of 1913, the production of those four companies was somethig like 870,000 tons; the revenue per ton of coal was $1.68; the profit per ton of coal was 44 cents, which is a 26 percent profit ratio. We wish we could begin to approach that condition today.

The maximum tonnage that the mines produced was reached in 1920, with something over a million and a half tons. The minimum tonnage was in the depth of the depression, in 1934, with 292,000 tons.

The first washery in Utah was built at our mine in 1923 and 1924. Since that time the washery was rebuilt in 1937, again rebuilt in 1946, and subsequently has been modernized.

The mine was mechanized completely in 1938. Since that time the program has been one of modernization to underground equipment, bigger, better equipment, the development toward the use of conveyors to supplement rail haulage.

The program of capital additions yearly has amounted to expenditures in excess of depreciation allowances that we can show.

Our present capacity is 2,500 tons of washed coal per shift, or approximately 6,000 tons if we were able to operate 3 shifts.

During the postwar period, particularly, the parent company has devoted more and more research into some of the things that can be done toward expanding the use of coal. In 1954, for instance, the company expenditures were somewhat less than 1 percent of coal sales. In 1955, they were about 1¼ percent, and in 1956, just under 2 percent of total coal sales.

These problems of research somewhat follow some of the recommendations of the bureau bulletin that Mr. Williams quoted earlier. They have to do with things that we might do toward the uses of coal, uses in the domestic field, uses for energy, uses for industrial purposes. They have to do with studies of carbonization and chemicals. They have to do with costs—the costs of mining, the cost of preparation, and the recovery of coal.

So that the field of economics is a very important one in the appraisal of coal operations.

We wonder what the future holds. I am sure that I express the attitude of my company when I say we are sanguinary over the future of coal. When I say "future," do I mean immediately, or am I forecasting several years ahead?

Let's look at some of the consumption problems of coal.

The use of coal for domestic space heating has been going downward rapidly. We believe that trend will continue. The use of coal industrially is expanding slowly. Nationally something like 20 percent of our coal production last year was used for industrial purposes.

A further use of coal that will continue to expand, but slowly, is in the field of carbonization and chemicals. The chemicals derived from the carbonization of coal are more or less dependent on the demand for coking coal.

There has been considerable work done, and there is a great deal of advertising as to what will be done in the field of low-temperature carbonization, and certainly the field looks to be a most interesting one.

The Bureau of Mines is to be commended on the work that was done, much of which was done here in Denver in that particular field.

There has been the matter of power and energy. It is interesting to note that probably one of the greatest potential uses for coal would be in the power field. Two extremely interesting papers that were given, one last fall at the Denver Energy Conference by Mr. Charles A. Scarlott, and one at a meeting of electrical engineers in Sacramento, Calif., last October, by M. S. Oldacre, point out what is likely to take place in this field of power generation.

One of the immediate points of interest to those of us who are interested in immediate markets is that of coal export. The coal export total this last year was some 48 million tons. In 1957 it is estimated to be something in the order of 52 million tons. We believe that one place where Government help could materially help the mines is in a better program for coal export.

For instance, the purchase of coal for export in the past has been one where coal has been bought throughout the year, and the prices that the Government pays at the mines will vary from something in the range of $3.75 a ton to over $6 per ton. The time when the mines need that kind of production is in the spring, the months of March through July. If it were possible that adequate storage were available at some point on the Pacific coast where sufficient tonnage could be stored, I believe the Government in general could save a considerable sum of money.

In order to do that, we believe there must be a study of the coal demands of the Orient over the coming years. We believe that that particular phase is one that could benefit the mines in the western part of the country, and so help materially.

The total export shipments to the Orient last year were in the order of 955,000 tons, comprising 101 cargoes. Of those, Utah received 55 cargoes, or 520,000 tons; Washington, 3 cargoes, or 29,000 tons; Australia, 7 cargoes, or 67,000 tons; Japan, 28 cargoes, or 260,000 tons. There were an additional 8 cargoes of 76,000 tons. I suppose those miscellaneous cargoes represent shipments that were made from the east coast.

If it were possible that the Government could anticipate the export requirements over the next 2 or 3 years, and if efforts could be directed toward establishing storage facilities, storage coal-handling facilities on the west coast, the coal mines would be benefited.

One of the difficulties of competing on export coal during the winter season is that of freight. The shortage of freight cars in

the fall of the year sometimes reaches desperate proportions. We had one instance when a cargo was held in railroad cars for something like 3 weeks. Other companies have had similar instances where demurrage has had to be paid, and has been for the benefit of the Government.

We think in looking toward the future that coal will come into its own. We are concerned with the present conditions. We think that whatever is good for the coal industry will be good for us miners in this western part of the country.

To be specific, it seems that one of the requirements, or one of the services that Government could perform would be in an economic survey that would establish the relative efficiencies of fuel-burning equipment so that those agencies that are considering the use of gas or oil or coal in particular installations could have a nonprejudiced opinion of the kind of equipment that they should use, the kind of fuel they should burn.

We have run onto instances where persons concerned with fuel-burning equipment will automatically assume that they will use this kind of equipment because it will give efficiency of 75 percent, whereas the efficiency of coal-burning equipment may be only 50 percent. We know that is not right, but unless there is some authority that can counteract that kind of propaganda today we are up against it.

Another point is that in this matter of research our company is a member of the National Coal Association and the Bituminous Institute. The research that is being done on the continuous miners and coal-fired gas turbines, household space heaters, automatic boilers, smoke abatement, and the increased use of coal for carbonization are all projects that are well worth doing.

The research of such companies as the Pittsburgh Consolidation and Koppers in the fields of hydrogenation and gasification will bear fruit in the future.

Those are the kind of things that have to be done for us today. We want markets, and we think there is not anything that would help the coal industry more than to be able to increase the production from our mines, say, those in Utah, from the present 2½ million tons to, say, something approaching the 5 million tons it was in 1950.

Thank you.

(Statement referred to on page 412 follows:)

UNITED STATES FUEL CO.,
Salt Lake City, Utah, April 2, 1957.

Hon. WILLIAM DAWSON,
Member, Special Subcommittee of the House Interior and Insular Affairs Committee on Coal Research, House Office Building, Washington, D. C.

DEAR CONGRESSMAN DAWSON: Pursuant to leave granted at the hearing held in Pueblo, Colo., March 11, 1957, United States Fuel Co. submits the attached statement.

Very truly yours,

OSCAR A. GLAESER, *Vice President.*

STATEMENT OF UNITED STATES FUEL CO., SALT LAKE CITY, UTAH

INTRODUCTION

The United States Fuel Co. welcomes this opportunity to present to you a brief history of its operations and to make suggestions which will be helpful to the coal industry.

HISTORICAL BACKGROUND

The United States Fuel Co. was organized in 1915 and acquired the properties of Consolidated Fuel Co., Castle Valley Coal Co., Blackhawk Coal Co., and Panther Coal Co. The mines acquired are located in the Hiawatha-Mohrland area, 20 miles southwesterly from Price, the county seat of Carbon County, Utah. Exhibit A, attached to this statement, shows an outline of coal outcrops of Carbon and Emery Counties in Utah and the location of United States Fuel Co.'s properties. The maximum tonnage was reached in 1920, when over 1½ million tons of coal were produced. The minimum tonnage was during the depression year of 1934, when 290,000 tons were produced.

Coal production of United States Fuel Co. and its predecessors totals 20 million tons and reserves of coal in lands which it owns or holds under Government lease are sufficient to assure high production for many years.

United States Fuel Co. has always followed a policy of research and development. The company installed a modern tipple at its Hiawatha operation in 1924. A washing box was added and the preparation plant was modernized and enlarged in 1938. Further improvements were made in 1945.

FACILITIES

The policy of modernization and mechanization started many years ago continues unabated. A modern coal-handling and storage facility ahead of preparation was built in 1955. This facility allows the preparation plant and mine to operate independently for a limited period. Mine improvements include more and better face equipment and the use of a conveyor belt to supplement underground haulage. Another advance is facilities for byproduct recovery. In 1948 equipment was installed for partial recovery of fossil resin from coal. Since 1948 slow but steady increases in markets for resin encouraged greater resin recovery. Research indicated that additional resin could be recovered. During 1955 and 1956 a flotation circuit was added to the preparation plant. This is the first such operation in the United States.

United States Fuel Co. maintains a research program. As an example of the increasing importance of this phase of operation, in 1954 expenditures for engineering and research were somewhat less than 1 percent of coal sales. In 1955 the ratio increased to 1¼ percent and in 1956 to almost 2 percent.

Research for a small company such as United States Fuel Co. is confined to applied research. The company believes that only with an active and positive research program can it find the answers to problems that plague the industry.

WHAT ABOUT THE FUTURE?

In considering the future of coal, various outlets should be considered. For convenience both outlets and market factors are considered.

Domestic market

The market for coal for domestic space heating has shown a slow but steady downhill trend. Figures for 1956 indicate that less than 10 percent of coal production now reaches this market. Nationally this trend is expected to continue. The Utah coal producers are in the unfortunate position of being in the center of a rapidly expanding natural gas development. During 1956 a gas transmission line to the Pacific Northwest was constructed by the Northwest pipeline division of the El Paso Gas Corp. The gas line originates in the San Juan Basin of northwestern New Mexico, parallels the Utah-Colorado border, crosses southwestern Wyoming to the Pocatello area of Idaho, crosses southern Idaho in a westerly direction and from Boise heads northwest to reach both Portland and Seattle. A connecting line from the Peace River area of eastern British Columbia is being constructed to join the northwest pipeline at Sumas, Wash. During the coming years the expansion of gas in Idaho, Oregon, and Washington may mean that the market for coal for domestic space heating will decrease faster than the average through the country.

Industrial market

Nationally the market for coal for industrial uses consumes 20 percent of coal production. A steady and slowly rising production for this market can be anticipated.

Energy-power markets

Probably of greatest future impact on the coal industry will be the demands for power energy. In 1956, 30 percent of coal production was used for thermal generation of electricity. In 1957 estimated consumption will be 32 percent. In the 25 years from 1925 to 1950, coal demand for thermal power rose from 38 to 113 million tons. The estimated consumption in 1957 is 170 million tons and in 1975 is 330 million tons. In 1900, 7 pounds of coal were required per kilowatt-hour; in 1950; 1.19 pounds; and in 1956, 0.75 pounds. As an average, electric power generating capacity and consumption double every 10 years. While year to year increases may not indicate such a growth, since 1900 capacity has increased faster than this rate. In 1955 in the United States there were 130 million kilowatts of generating capacity. Estimates for 1975 vary from 500 to 650 million kilowatts. Coal mines must be maintained in operating condition with up-to-date equipment if the demands of thermal generating plants are to be met. A war would throw an almost insurmountable load on our mines. A mine cannot be opened overnight. Delays in responding to sudden increased demands would be catastrophic.

In considering the energy-power markets some data regarding our fossil-energy sources are of interest. Included in this category are coal, oil and gas, oil shale and oil sands. Recent consensus of opinion (Energy Resources Conference, Denver, October 1956) indicates that coal in its various forms represents 80 percent of this reserve. Oil and gas represent 15 percent and shale and sands 5 percent. A comparison of this reserve with the present utilization of energy shows that in 1955, 63 percent of energy demand was furnished by oil and gas, 33 percent was by coal and the remaining 4 percent was supplied by hydropower. The ratio of energy consumption to energy reserve is a most important factor. The imbalance of consumption to reserve indicates the vital need for expansion of the coal industry.

A forecast [1] of oil and gas consumption shows a declining production after 1970. Discoveries will not match demands and production of both oil and gas will decline. With all the publicity attendant upon the discoveries of oil in the Williston Basin, the known reserve there is less than 1 week's consumption in the United States. Similarly, the estimated reserves of natural gas in Canada total less than 10 percent of the gas reserves in the United States.

What is the story about oil shale and oil sands? It is generally believed that oil shales will be developed before oil sands and the reserve is considerably greater. During the postwar period the Bureau of Mines contributed much to the oil shale future by its work at Rifle, Colo. Problems of extracting oil shale and treating oil shale received considerable attention. Since the Bureau ceased its Rifle tests, the Union Oil Company of California decided to conduct a pilot plant operation. An interesting note is that Union Oil has greater reserves of oil contained in shale than its petroleum reserves. Union Oil Co. has set aside $7½ million for research both in problems of mining and extraction of oil. At the Denver conference, it was stated that commercial operation of oil shale plants is 10 years away. The capital costs per barrel of daily capacity as well as operating costs are above those from normal oil production. One of the important cost savings is that of exploration and discovery cost. Today in the United States exploration and discoveries for oil cost approximately 80 cents per barrel. The vast reserves of oil shale can on this comparison show no cost.

As a final comment relative to our fossil fuels, estimates for 1980 show that of electric power generated, hydropower will contribute 9 percent, nuclear power will contribute 10 percent, natural gas will contribute 5 percent, oil will contribute 2 percent, and coal will contribute 74 percent. A study of the reserve of fossil fuels shows that 67 percent of coal and 75 percent of oil and gas in the United States are west of the Mississippi River. The location of these vital reserves poses some interesting observations. The fastest growing area in the United States percentagewise is the Pacific coast and the 11 Western States. In the not too distant future Utah coal might be used for power generation on the Pacific coast. Today the cost at some California powerplants of fuel oil ($3.05 per barrel) and coal is almost the same. Only a slight increase in the cost of oil and the same or a reduced coal price would make the use of coal attractive.

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[1] M. S. Oldacre, Stanford Research Institute before Sacramento Section, American Institute for Electrical Engineers, October 11, 1956.

Among research and development projects that might result in greater use of coal for power are the following:

1. Improved mining methods that would result in lower costs for production of Utah coals.
2. Improved processing that would reduce moisture and ash with resultant effect on transportation and storage costs.
3. Lower transportation cost.
4. Improved methods of handling by important and large consumers. The use of 100-ton gondolas for rotary dumping offers economies.
5. Improved power transmission which would increase the present 300-mile economic limit. Should it become economical to transmit power 1,000 miles, there would be a greatly expanded market for power generated at plants located near Utah coal mines.
6. Economic studies which would guide the industry in determining when coal deposits should be developed, the extent of such development, and the coal requirements from various areas.

Time does not permit a discussion of such items as solar energy, nuclear energy, controlled fusion, and the chemical fuels of hydrogen, boron, or lithium. Solar energy is considered costly and will likely be unimportant. As an example, for a 100,000-kilowatt plant, a collection area of 250 acres would be required. Nuclear energy will contribute more and more as time passes but by 1980 is unlikely to contribute over 10 percent. Controlled fusion represents the greatest potential of energy development. When one considers that a gallon of ordinary tap water contains enough energy to operate a household a year, the implications are tremendous.

Export coal markets

The export market for coal is one of particular interest to coal producers in the West. In 1956, including exports to Canada, this market consumed 13 percent of domestic production. The estimate for 1957 is 14 percent. In 1956 export coal from all mines in the United States totaled 48 million tons (exclusive of shipments to Canada). Of this, 1 million tons were directed to Korea. In 1957 export coal is estimated at 52 million tons. The Government has opened the export business to the world. Anyone who cares to bid may submit quotations for export coal. Bids are awarded on the basis of price, corrected to a B. t. u. content. Specifications are not severe. Of 1956 awards for exports to Korea, Utah received 55 cargoes (522,500 tons); Washington received 3 cargoes (28,500 tons); Australia received 7 cargoes (66,500 tons); Japan received 28 cargoes (262,000 tons), and there were 8 cargoes of miscellaneous origin (76,000 tons). One might assume that the miscellaneous tonnage originated in our eastern coal belts. There are indications that other areas of the Orient besides Korea will need coal. If the Government would make an objective study of the coal requirements of the Orient and outline a production program for that area, it would be of value to western coal producers.

Facilities for handling export shipments from the Pacific coast could be improved. At the present time the port of Seattle is unable to handle export coal by reason of failure of port facilities. Most of the export coal is shipped from Portland. There are no storage facilities at that port and the coal-handling equipment is not up to date. Export coal is charged $1.60 per ton to cover handling. Modern equipment would save at least $1 per ton for handling. A minor tonnage is shipped from Stockton, Calif., where there is a small storage area. The lack of storage facilities makes it necessary to schedule arrival of the coal at port to coincide with ship arrival. Naturally, failures of schedules occur. One of United States Fuel Co.'s shipments of 200 railroad cars was tied up for 3 weeks, awaiting the arrival of the ship. It has been the practice of the Government to call for quotations for deliveries of export coal throughout the year. Western coal production is highly seasonal. Utah coal mines operate generally at near maximum production during the period August through February, but during the period March through July production may be 20 percent to 30 percent, or less, of maximum. Consideration might be given to establishing up-to-date coal-handling and storage facilities at a common port on the Pacific coast. The Government already has docks at several points. If storage facilities for one-half to 1 million tons were made available, quotations might be called for spring and summer delivery only. During the past year quotations for Government export to Korea have varied from a minimum of $3.50 to a maximum of $6.18 per ton. This wide fluctuation in price indicates that at the height of the winter production season producers are not interested in export business

and during the spring and summer seasons such business is sought actively. If the Government ascertained the requirements for export coal and called for deliveries during the spring and summer months, substantial savings would result. It is difficult to transport export coal during the fall months. At that time the demand for gondola coal cars for beet harvest and other uses is so great that a severe car shortage exists. United States Fuel Co., as well as all other Utah coal producers, annually loses considerable tonnage because of the inability to obtain freight cars. The effect on customer relations is often severe. The addition of export coal volume during the peak fall shipments further aggravates this situation.

Economics of coal

A final category might be termed the general economics of coal in the West. The cost of transportation is of primary consideration. The railroads recognize the seriousness of freight costs. This is evidenced by their willingness to accept freight increases for coal below general freight increases.

A second factor in transportation is that of equipment. Much of coal-hauling equipment is old. Any program that would encourage the railroads to improve and increase their coal-hauling equipment would be helpful to the coal industry. Consideration should be given to the repeal of the transportation tax on coal: coal bears a flat 4 cents per ton transportation tax, fuel oil is charged 4½ percent of the transportation charged against oil, and natural gas bears no transportation tax.

ACCEPTABLE RECOMMENDATIONS

The complaint of the National Coal Association and other coal organizations that their recommendations are not given due consideration in the preparation of heating specifications for public buildings indicates the need for an objective study of space heating. The Bureau of Mines, which has under its jurisdiction gas, oil, and coal, might be the vehicle for conducting such a study. The study should include the different kinds of modern fuel-burning equipment and the economics of fuel burning in the different areas of the country. Some alleged heating authorities claim that gas-burning equipment is 75 percent efficient, oil-burning equipment is 70 percent efficient, and coal-burning equipment is only 50 percent efficient. These ratios are not correct with modern fuel-burning equipment. If an objective study were made, it would be a reference for public installations such as those of the Federal, State, and local governments. If choices were then made that were not economic, proper publicity and action might be taken. The study should also include a review of local ordinances relative to attendant labor, the installation costs of different kinds of equipment, fuel cost, and operating cost comparisons.

RESEARCH

While the expenditures for research in the coal industry do not approach those in the petroleum industry, nevertheless, they are substantial and represent, percentagewise, an important item in the cost of doing business. The Government, through the Bureau of Mines, has performed excellent service, particularly in the field of fundamental research. The Bituminous Coal Institute, comprising some 300 companies including producers, equipment manufacturers and railroads, has conducted worthwhile research in the fields of continuous miners, coal-fired gas turbines, household space heaters, automatic boilers, smoke abatement and increasing the range of coking coals. United States Fuel Co. is a member of this body and of the National Coal Association. Individual companies have performed creditably in the fields of research. Without trying to be inclusive, the work of such companies as Pittsburgh Consolidation Coal Co. and Koppers Co. in the fields of hydrogenation, gasification, synthetic fuels technology and pipeline coal movement should be mentioned. Many companies spend substantial sums for research, trying to expand the uses and markets of coal.

CONCLUSIONS AND RECOMMENDATIONS

Long range, United States Fuel Co. has a sanguine outlook for coal. The present and the immediate future are of concern. Natural gas is encroaching seriously into coal markets of Utah producers. Based on its studies of coal, particularly the problem of Utah producers, United States Fuel Co. suggests the following for your consideration:

1. A study into the efficiencies and economics of fuel burning equipment be authorized. The study should determine:
(*a*) The relative efficiencies of coal, gas and oil in different classes, sizes and kinds of fuel burning equipment.
(*b*) The economical fuel for any given condition in any part of the country.
2. Support of the Bureau of Mines' research program, with special emphasis on—
(*a*) The commercial utilization of tars from low temperature carbonization.
(*b*) Development of metallurgical coke from noncoking coals.
(*c*) Fundamental research.
3. A study of export coal, including:
(*a*) A 3-year forecast of demand by country and market, and
(*b*) Recommendations with respect to:
(1) Storage and coal handling facilities for unloading trains and loading ships at a convenient west coast port,
(2) Delivery of annual export-coal requirements during the slack spring and summer months, and
(3) Assignment of specific tonnage to certain areas where the coal industry faces distress conditions.
4. Repeal of the transportation tax on coal.

Mr. DAWSON. Mr. Mays.

STATEMENT OF HAROLD R. MAYS, BITUMINOUS COAL INSTITUTE, WASHINGTON, D. C.

Mr. MAYS. Mr. Dawson, as I told you before, I did not expect to say anything, but some comments were made a little while ago that seem to me should prompt some comment from me.

Representative Metcalf referred to a publication here as having received it from Colorado, and I am a little bit embarrassed because I am just wondering if our National Coal Association in Washington has not appeared before you, or submitted any material yet.

Mr. EDMONDSON. Mr. Mays, I would like to say on that, that have not only witnesses from the National Coal Association who have been extremely helpful, but we have also had a large quantity of material which has been supplied to us on many different points of interest to the committee. It was not intended by Mr. Metcalf, I am sure, to imply the association had not been helpful. They have been extremely helpful to us.

Mr. Sullivan, who is a representative for them in Washington, has been following closely all of the proceedings of this committee, and has been quite a spur to committee activities.

We did check with our staff representative when this was received to ask if it had been submitted, and we were told it was not in the committee files. So that prompted the remark Mr. Metcalf made.

Mr. MAYS. I am glad to hear that. That particular publication, of course, was earmarked for the use of schools, largely, and I happen to be partly responsible for it. I personally distributed that in my area to several hundred school people.

Of course, anything that I could say here would be redundant when we think of what the National Coal Association can supply. So I did not intend to touch on anything.

I will mention this fact, however: Mr. Hefferly referred to some Government installations that he feels could have been designed for coal and were designed for gas. I think possibly in the minds of you gentlemen, you might say, well, perhaps gas is less expensive. Actually, we have files in Washington prepared by myself and others that

will prove that these plants could have and should be burning coal economically. In other words, from the point of view of the taxpayers' money, coal would be a much better buy for them. In spite of that, gas has been selected.

That is also true, incidentally—and we are a little bit curious to know why—in some of these plants that have Government contracts.

The Martin guided-missiles plant was mentioned. I made a personal effort to see that that plant was designed for coal, and the report that I got made me think there is some kind of a quasi-cost-plus-fixed-fee deal that made them fail to care how much the costs were going to be, and they wanted to burn gas even though it might cost more. I might be wrong about that, but certainly the feeling was if coal was cheaper they normally burn coal up there if they were interested in a dollar-and-cent cost base of operations.

That is true of some of the plants recently established around Utah. At Marquandt's instead of burning coal for less money than gas, gas was selected for some mysterious reason.

I just want to say this much: That I represent not only the gentlemen from Utah, but also the entire Western States, including Wyoming, Colorado, New Mexico, and the coal production of the State of Washington. So the fact I am here today is in a sense testimony of my feeble effort to learn what I can in order to help the whole western part of the United States.

Thank you very much.

Mr. EDMONDSON. Thank you, Mr. Mays.

We will now have questioning of the witnesses.

Mr. Metcalf, do you have any questions?

Mr. METCALF. Thank you, Mr. Chairman.

You represent the 13 Western States in what capacity?

Mr. MAYS. District manager of the Bituminous Coal Institute, which is the market promotion department of the National Coal Association. We were called for a long time just the market department of the National Coal Association, but last September they changed our name, and the support of the Bituminium Coal Institute is more or less as it is with bituminous coal research—most of the money is put up by the National Coal Association members, but we also have equipment companies, railroad companies, some utilities that are contributing to the work that we are doing. More than just coal producers.

Mr. METCALF. I do not know which of the three will answer this next question.

Where does the natural gas come from that is being burned in Utah?

Mr. MAYS. The natural gas that is burned in Utah originally came from Wyoming fields, supplemented by gas from Utah itself, the Clear Creek district. There is some gas going to come into Utah shortly that will come from the Pacific-Northwest pipelines, which will be gathered largely in New Mexico.

Mr. SLOAN. Fifty-two million cubic feet a day they are buying.

Mr. METCALF. Fifty-two million cubic feet of gas is being——

Mr. SLOAN. Being purchased by the Pacific Northwest Co. to enable them to take on more industrial business, domestic business, in their present market, which is mostly Utah at this time.

Mr. METCALF. That is all.

Mr. EDMONDSON. Mr. Saylor.

Mr. SAYLOR. Mr. Sloan talked about coal. I wanted to ask whether or not coal in Utah, particularly these Western States outside Colorado is high or low-volatile coal.

Mr. EHRHORN. Utah coal is in the range of high volatile, ranging from the lowest of the Utah coals, and those are the ones represented by the production of the captive mines, probably 38-percent volatile, and the highest runs 45-percent volatile. That is on a moisture-free basis.

Mr. SAYLOR. Mr. Mays, is that about true for the coal that appears in the other Western States oustide of Colorado, and New Mexico, on which we have had some other testimony?

Mr. MAYS. Yes; generally that is true. There are some spotty productions in some of the States that are not very important that have slightly different analyses, but generally all of our coals in our territory are high volatile.

Mr. SAYLOR. Mr. Ehrhorn, I think you made the statement that in your opinion space heating markets as far as homes are concerned will continue to grow.

Mr. EHRHORN. Decrease. We think it will decrease.

Mr. SAYLOR. Yes; that is correct. The market will decrease for coal but increase for gas.

Mr. EHRHORN. Yes.

Mr. SAYLOR. In other words, you feel if there is going to be any possibility for the future of coal in your area, it will have to come from industrial expansion and increased industrial uses of coal?

Mr. EHRHORN. Yes. And of course in the field of power as differentiated from industrial.

Mr. SAYLOR. Do you know of any power companies in your area or the Pacific Northwest that are using gas at the present time?

Mr. SLOAN. Practically all of our plants are, in Utah, at the moment, with the exception of one down at our mine. They have gone to gas or gone to using this oil they are getting out here from the oil people right north of Salt Lake City. One plant was supposed to be put up to use coal exclusively, and I believe it would have, but the gas people came in with additional gas from the Pacific Northwest, and it is selling about 20 cents, will be 21, I believe he said. That means we have to place coal into those plants for perhaps $5.25, which is utterly impossible. They use 750,000 tons of coal. I believe the three plants in Salt Lake use a million in all on coal; is that not right?

Mr. EHRHORN. The only straight coal-burning installation is Utah Power & Light at Castelgate. There an original plant of 665,000 kilowatts was started, and at the present time they are building an additional unit of 100,000 kilowatts.

The plant in the Salt Lake Valley area uses coal more or less as standby. When their gas is cut off they go to coal or oil.

In connection with the suggestion of an economic survey, certainly freight has a most important part. We recognize that the railroads also recognize this matter of freight and the importance of freight. Nonetheless, there are, in our opinion some inequities in the freight programing, freight scheduling. If you have freight for great distances, there is a range from 9½ mills per ton-mile of freight to as low as 5½ mills per ton-mile of freight.

There are certain gateway blocks that have not been clarified, ones similar to Ogden gateway that I am sure our Congressman from Utah is aware of.

The problems of freight are certainly most important in this economic study of coal. Because of the importance of coal in the future energy picture, it seems that some agency that is in a position to perform an objective study could contribute real service to the coal industry, to the whole engineering profession, in this western country. We could eliminate a lot of these prejudices that now exist, the ones that Mr. Hefferly talked about, when somebody wants to use gas because they are supposed to do certain things, and in the final analysis coal is not given consideration.

Mr. SAYLOR. Let me ask you one other question, Mr. Ehrhorn. Have you had any difficulty with the railroads in getting cars for shipment of your coal, either for overseas shipment or for shipment into the Pacific Northwest?

Mr. EHRHORN. I believe in the fall of the year we have had for many years car shortages. It is a difficult situation from the standpoint of the railroads. The sugar-beet production is marketed at a time when coal sales begin to rise, and the sugar industry uses the same type of equipment; so that the railroads have that problem of having a shortage of cars in the fall and a surplus of cars in the spring. It is in that particular regard that we thought that being able to handle export coal with adequate storage facilities on the Pacific coast would tend to smooth out that particular problem.

Mr. SAYLOR. What ports do you use on the Pacific coast for export?

Mr. EHRHORN. At the present time, Portland takes the most of the tonnage. The facilities at Seattle are, I understand, dilapidated, have failed, and have to be rebuilt.

There is some tonnage that goes in at Stockton, but of kind of a minor consequence.

The railroads have equalized coal shipment freight rates from Carbon County, Utah, to Seattle, Portland, San Francisco, and southern California.

Mr. SAYLOR. Thank you.

Mr. EDMONDSON. Mr. Dawson.

Mr. DAWSON. Mr. Ehrhorn, is the lower freight rate accountable for by the fact that Utah has received a considerable portion of this export coal to Korea? Why would Utah receive that extra tonnage and Colorado not, for instance?

Mr. EHRHORN. I think it probably would be the freight differential.

Mr. DAWSON. I observe from the report you have in 1955 that Colorado had received two cargoes——

Mr. EHRHORN. They got no shipments.

Mr. DAWSON. On page 1 of the annual report of 1955, there is this statement:

> As a result of exhaustive contacts, the C. F. & I. sales department submitted a successful bid to furnish 2 cargoes of coal at 10,000 short tons each, to be shipped to Korea. This coal, which was produced from the Harris-Aetna strip and the Osage strip mines in Routt County, is the first record of any cargoes of coal to be shipped to overseas from the State of Colorado.

Mr. EHRHORN. I was not aware of that. The ones I cited were 1956.

Mr. CHENOWETH. I wonder if we could ask the C. F. & I. sales branch whether that is correct.

Mr. BESSER (J. S. Besser, sales manager, Colorado Fuel & Iron Corp.). Some years ago, the administration in Washington said

they wanted to help the distressed coal areas. They recognized the freight differential against a lot of areas. Here we are in the middle of a country where we have the highest freight rate to the coast anybody has. So they said, "To do this we will put out invitations to buy coals that are restricted to production in a certain area."

They did that just once. They put out an invitation for three cargoes of coal to go to Korea that must be produced in the States of Colorado and New Mexico. We were able to get two cargoes and New Mexico got the other one. The only reason is because the production must be confined to the States of Colorado and New Mexico, and it puts us all on a competitive basis with producers here. We could get the business.

But Utah, unfortunately for us, is between us and the coast. They have a freight rate of $2.70 per ton less than we do on export coal. That shuts us out.

If the Government would continue the program they said they were going to, we could get some.

The matter with Colorado coal is we do not have consumption. You can produce anything, but what is the use of producing it if you cannot sell it? Nobody uses coal out here that can possibly get away from it. If the Government facilities in the State of Colorado would go back to coal where they were originally, it would be felt over all Colorado coal-mining counties, if they would do it now, and do it quick. A lot of these Government facilities are built on tracks with coal underlying them; yet they are on gas.

This is not because of a lack of initiative on the part of our producers here. We have what we call the Colorado Coal Producers Committee, and we have called the attention of people in Washington, the designing engineers for these plants, to this continually. As soon as we learn they are going to put up plants, we call to their attention the advantages of coal, the comparative costs, and the plans are all drawn up before you can ever get there, and they say, "We will not change them, and we are going to burn gas. That is all there is to it, we are going to burn gas; we are going to burn gas; we are going to burn gas."

Mr. CHENOWETH. Thank you very much. I think we may want to hear some more from you this afternoon.

You did get two cargoes?

Mr. BESSER. Yes.

Mr. CHENOWETH. Thank you very much.

Mr. BESSER. That is coal produced in Colorado and New Mexico.

Mr. SLOAN. The General Services Administration has taken over from the Navy in the buying of this coal. It is that that they asked for bids on, worldwide. Japan can compete, Australia can compete, India can compete, any place in the world can compete, and buy coal. We put up the money, I suppose, to buy it, but they are all in on the deal.

Mr. DAWSON. At this point I think it might be very helpful for the record to insert a letter which I received from the International Cooperation Administration, which was in reply to a query I made of General Services Administration, stating what the possibilities for the future might be for this export business. I do not have the

letter with me, but it was suggested at the request of one of my constituents at home, and I think it might be very helpful to the committee if I did put that into the record.

Mr. EDMONDSON. If there is no objection, the letter will be made a part of the record.

Hearing no objection, it is so ordered.

(The letter follows:)

INTERNATIONAL COOPERATION ADMINISTRATION,
Washington, D. C., March 1, 1957.

Hon. WILLIAM A. DAWSON,
House of Representatives,
Washington, D. C.

DEAR MR. DAWSON: Reference is made to your letter of January 11, to General Services Administration concerning the coal-purchase program for Korea, which was referred to this agency for reply.

The current coal-purchase program calls for the delivery of approximately 80,000 tons per month for the remainder of fiscal 1957. However, as the program for conversion of coal-burning locomotives to oil burning and modernization with diesel locomotives is implemented, the requirement for imported coal will decline acordingly. The requirements for future fiscal years will probably decline although the rate at which this decline will occur depends on the volume of future traffic and the rapidity of implementation of the modernization and conversion programs.

Sincerely yours,

GUILFORD JAMESON,
Deputy Director for Congressional Relations.

Mr. DAWSON. I would like to ask one final question of Mr. Mays.

In view of the fact your chief competition is coming from gas, and you inferred there might have been some practices resorted to by the gas people which would bear looking into, would you recommend that the Federal Power Commission, or some other unbiased body look into these practices?

Mr. MAYS. Yes, I would, Mr. Dawson. I feel this: That the initial price offering made by either the Pacific Northwest pipeline direct, or the distributing companies is not realistic. I do not think for a minute that they intend over a period of more than 2 or 3 or 4 years to continue with those rates. They are offering rates that do not add up economically. They are offering rates to types of buyers which have been recognized for a long time as not the most desirable type of buyer. I refer now to straight heat loading on an interruptible basis.

They have consistently attempted to secure that type of connection on rates that I feel sure will be changed, will be corrected, will be canceled in a matter of 2, 3, or 4 years.

They have offered rates, for example, to the University of Washington State College at Pullman, of 3.4 cents a therm, which happens to be so low that that college is asking for $118,000 appropriation from the Washington State Legislature for enough money to convert to gas. Three and four-tenths cents up there on that branch line where there are not many other industries is just not sensible as a gas price. Any economic study will indicate that is not proper.

We feel, and I think the college feels, that after they have this connection 4 or 5 years from now the gas price will be bounced, so they will ask them to discontinue that interruptible service.

It is this difficult low-price incentive that is causing us to lose a lot of business that we should not lose if the fuel is sold on its merits, long-time merits.

Mr. DAWSON. Then they must take into consideration the expenditure they have made to convert to gas, and once they have put that expenditure out they are perhaps going to say, "Rather than go to coal, this may be even cheaper. We have got this big investment, and we must continue to pay the additional price for gas." Is that the situation?

Mr. MAYS. Yes. That exists all the way down through schools, and all types of buyers, that they are enticed to make a connection on the basis of currently low rates, and then 2 or 3 or 4 years from that they get some higher prices and are ready to go back to coal. So it is an unnatural and unrealistic offer that they are making, I think, which we cannot match.

Mr. EDMONDSON. Mr. Chenoweth.

Mr. CHENOWETH. I am not going to take the time for questions. I do want to tell the Utah group I think they have made one of the most interesting and most effective presentations that I have heard in any of the hearings which we have held, particularly your statement, Mr. Ehrhorn, being very helpful. You have analyzed the different uses of coal, and how some are increasing, many decreasing. Your suggestion about the survey for the economic efficiencies on different fuels is something I think might very well be followed to great advantage of the coal industry.

I have greatly enjoyed your presentation, and appreciate your coming over to Colorado to be with us today.

Mr. EDMONDSON. I would like to thank the gentlemen, to compliment them on a very fine, well-prepared presentation, and ask only one question.

Do you gentlemen support the recommendations of the National Coal Association with regard to a research program?

Mr. SLOAN. Very definitely.

Mr. EDMONDSON. All of you are in support of that program?

Mr. EHRHORN. Yes.

Mr. MAYS. Yes.

Mr. CHENOWETH. I would like to ask one question of Mr. Mays. What is the difference in the competitive field between your organization and the Bituminous Coal Research, Inc.? You are apparently two different groups.

Mr. MAYS. We have two distinct functions. The bituminous coal research is part of the National Coal Association in the sense they are affiliated and so are we. They perform the work of research in fuel-burning equipment, underground equipment, safety, and so forth. Ours is entirely in trying to help sell the coal market. We are a market promotion department entirely.

Mr. CHENOWETH. How about developing new uses for coal? Where would that function lie?

Mr. MAYS. Largely with bituminous coal research. Anything we can do we add to them. Then, of course, the Bureau of Mines is doing a lot on that too, in conection with the bituminous coal research.

Mr. CHENOWETH. Thank you.

Mr. EDMONDSON. We thank the gentleman from Utah.

I will repeat a statement I made earlier in the day. If there are any witnesses who have not yet made their names known to the committee, see Judge Chenoweth or Mr. Soule, of the staff, during the

luncheon recess, and let us know who you are. We are certainly going to stay this afternoon to hear every witness who wants to be heard.

The subcommittee will stand in recess until 2 o'clock.

(Whereupon, at 12:45 a. m., the subcommittee recessed until 2 p. m. of this same day.)

AFTERNOON SESSION

Mr. EDMONDSON. The subcommittee will come to order.

Our first witness will be representatives of the State of Wyoming. In the interest of time conservation, and also orderly presentation, we are going to ask that each of the witnesses complete his statement before we have questioning of the witnesses. Then at that time each witness will stand by as a group, and we will address questions to individuals in the group.

I believe Mr. Steiling is here as the Governor's representative. We are very pleased to have you here, sir. Do you want to identify the other members of your group?

STATEMENT OF BOB STEILING, BOARD SECRETARY, WYOMING NATURAL RESOURCE BOARD

Mr. STEILING. I would be very happy to, sir.

I have with me here today seven representatives that represent the different areas of interest in the coal industry in Wyoming.

Like the other groups, we were informed rather late of the date of this meeting, and our presentation is necessarily somewhat brief, and perhaps not all inclusive. In the interest of time we have tried to integrate our presentation that our witnesses, one after another, will try to form for you. First, the background of the coal industry in Wyoming; the research that is being done in the State of Wyoming, our prospects for the future; and then we will outline to you what our recommendations to this committee are.

If it is all right, I will introduce the witnesses as they appear.

Mr. EDMONDSON. That will be fine.

Mr. STEILING. The first witness I would like to introduce to you this afternoon is Dr. Henry Fisk, who is the director of the Natural Resources Institute at the University of Wyoming, a State-supported organization.

Dr. Fisk will appear twice; this time very briefly. But I believe that Dr. Fisk is best qualified to give your committee a general impression of the coal industry in Wyoming itself.

STATEMENT OF HENRY FISK, DIRECTOR, NATURAL RESOURCES INSTITUTE, UNIVERSITY OF WYOMING

Mr. FISK. Chairman Edmondson and committee members, I think the story as it relates to Wyoming is very much what you have already heard in reference to Colorado and Utah and New Mexico, but perhaps in some respects a little more so.

With respect to the coal reserves in the State of Wyoming, we have some figures. These figures were taken from the United States Bureau of Mines Information Circular 7754, which has already been cited,

and from the figures that are there reported we find Wyoming ranked fourth among the States in the Union in coal reserves.

As a part of this prepared statement, which I believe is now in your hands, on page 2, you have a map showing the coal areas, the coal-bearing areas of the State. It is the same map which is before you here in larger form.

Paragraph 17, 23 counties in Wyoming have been known to produce coal, according to the record of the State coal mine inspector. Geographically and geologically the coal is pretty well distributed, as you see. One might say that practically the entire State, with the exception of the mountain ranges, is underlain with coal.

Because of the magnitude and distribution of the coal beds in the State, coal production costs are probably as economical in many of the areas in Wyoming as anywhere in the United States.

Of the types of coal in the State, we have practically all of the types represented, but the subbituminous coals are the ones which are important.

The bituminous coals have been used in the past, some in the production of coke, and it has been reported and found by the Bureau of Mines that the bed of lower creek coal in Cameo area can be used for coking purposes, particularly when blended with a suitable coal.

I think this will suffice to give you an idea of the magnitude and character of our coals in a general way.

Now briefly moving over to the picture of the coal industry as it has appeared in the past, and as it now appears, the figure on page 4 in the statement plots the coal production in the State. We have a chart of this as well.

We will note there that our highest production took place in 1945, following the war years, and that then we have had a rather precipitous decline down to the present year, 1956, which is indicated at the end of the chart. This production represents about a third of our maximum production, about 50 percent of our average production over the years covered by the chart from 1950 to the present time.

Finally, gentlemen, I will have to say that our outlook for the current year is not good. We are steadily losing markets. The railroads, of course, have been the backbone of our coal business in the State in the past, and now as domestic and industrial usage are going to oil and natural gas, our markets are continuing to decline. According to the best information that we have, our production this year will be even less than in the past year.

Thank you.

Mr. EDMONDSON. Thank you very much. Without objection, Mr. Fisk's prepared statement, along with the tables he mentioned, will be made a part of the file. It is so ordered.

Mr. STEILING. I am sure the committee appreciates, after hearing this very brief summation, why the State of Wyoming is as vitally interested in the coal resources as is this committee, because it affects the entire economy of the State, as well as representing our biggest potential resource development.

I would like to say that the testimony of these witnesses here today, as well as representing the individual groups, also represents the position of the State of Wyoming.

In order to give a little further explanation to the economic aspects of the coal industry in Wyoming, we have a number of various groups represented here today. I think for a more complete rundown on the effect on employment, on operators and what have you, I would like to present at this time Mr. John Lucas, Jr., of Rock Springs, Wyo., representing the Southern Wyoming Coal Operators' Association. He is a former coal operator and now a member of the committee for the industrial development of southwestern Wyoming.

Mr. John Lucas.

Mr. EDMONDSON. We are pleased to have you, sir. Go right ahead with your statement.

STATEMENT OF JOHN LUCAS, JR., ROCK SPRINGS, WYO., REPRESENTING THE SOUTHERN WYOMING COAL OPERATORS' ASSOCIATION

Mr. LUCAS. Mr. Chairman and honorable Members of Congress who are here with us today, my name is John Lucas, Jr., and I reside in the city of Rock Springs, Wyo. I appear before you today in somewhat of a dual role; first, as representative of the Southern Wyoming Coal Operators' Association, and second, as the president of the Rock Springs Fuel Co., a coal-mining concern now in the process of liquidation. This liquidation is being necessitated because of declining markets and users in our normal sales areas.

Under date of May 25, 1956, I was advised by Congressman Keith Thomson, of Wyoming, of the appointment of a special subcommittee of the House Interior Committee which would endeavor to obtain comprehensive information on coal with respect to—

1. Industry problems.
2. Recent developments and their possibilities.
3. The status and possibilities of research and development programs now in progress.
4. The possibilities of solving industry problems and creating new and increased uses for coal through additional and expanded research and development programs.
5. The requirements, feasibility, and degree of urgency of each program that may be recommended to the subcommittee, the facilities and personnel now available, and the means by which each program may be initiated and carried through to success, including the type and degree of private and public participation and methods of financing.

As with other Western States, the State of Wyoming is experiencing an economic setback in its coal-mining industry. This condition exists in all of Wyoming's once prosperous coal-mining areas. In order to establish a factual background I have prepared and am attaching hereto a statement covering coil-mining operations in the State of Wyoming for the years of 1925 through 1956. The year 1925 was selected as a starting point inasmuch as conditions in Wyoming's coal industry resulting from World War I had fairly well adjusted them-

selves. In detail you will find statistical and graphic data attached to this statement, but quickly I would like to review what has happened based on 5-year intervals:

Number of mines in operation (includes rail and truck)

Year	Commercial	Captive	Total
1925	43	17	60
1930	58	11	69
1935	84	8	92
1940	126	11	137
1945	54	11	65
1950	33	9	42
1955	26	4	30
1956	20	4	24

Of the 24 mines operating at the close of 1956 they can be classified as follows:

	Rail	Truck
Commercial	7	13
Captive	4	

You will note the fact in the year 1925 we had 43 commerical mines, 17 captive mines—and by "captive" I mean those mines that were operated for the production of railroad fuel—or a total of 60 mines in the year 1925.

In the year of 1940 that jumps to a total of 137. I think the figure of 137 can easily be accounted for. In the early thirties and latter thirties individuals that were out of jobs seemed to get in the truck and wagon mine business, and as a result, we had a good number of them spring up in Wyoming. However, as the war years advanced and progressed, a good many of these people were able to find other types of employment. As a result, in 1945, when we had our peak year of production, the total number of mines was reduced to 65.

Then in 1956, we have a total of 24 mines left operating in the State of Wyoming, 20 of which can be classified as "commercial," 4 as "captive."

In further breaking that down, you will notice that the rail mines—and they are our largest producers in the commercial classification, we have remaining 7, and in the "captive" classification, we have remaining 4.

This same information, if you would care to check, we show graphically in the back of the statement. So that while we try to give it to you statistically in block information, we have also tried to set it up for you graphically, showing the rise and decline of the total mines, the captive mines and the commercial mines.

Now, I would like to go into the employment situation so far as the coal mining industry in the State of Wyoming is concerned, using the same period 1925 through 1956.

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Employment in the coal mining industry in the State of Wyoming is disclosed as follows:

Average number of men employed, all rail and truck mines

Year	Commercial	Captive	Total	Year	Commercial	Captive	Total
1925	3,963	2,401	6,364	1945	1,693	3,121	4,814
1930	3,031	1,837	4,868	1950	1,106	2,492	3,598
1935	2,004	2,086	4,090	1955	444	535	979
1940	1,976	2,345	4,321	1956	478	538	1,016

You will note we had a very sharp decline at the end of 1950, a further decline and very sharp one at the end of 1955. Then in 1956, we have 1,016 men, just slightly higher than the year 1955.

Breaking that further down into rail and truck mines, commercial mines, rail mines, employed 438 at the close of 1956. Captive mines, which would mean the Union Pacific Coal Co. and the Monolith Portland Midway Co., employed 538 men at the end of 1956. Truck mines employed 40 men.

We have also set up for you graphically that information, and the graph can be found at the end of the statement.

As to production figures, we felt it would be advisable to break down the production into commercial and captive to show the rise and decline of both follow just about the same sort of curve.

Tonnages produced by the coal-mining industry in the State of Wyoming during 1925–56 is shown as follows:

Tonnages produced, all rail and truck mines

Year	Commercial	Captive	Total	Year	Commercial	Captive	Total
1925	3,777,908	2,779,669	6,557,577	1945	3,296,014	6,540,784	9,836,798
1930	3,256,749	2,814,020	6,070,769	1950	2,492,655	3,849,244	6,341,899
1935	2,277,557	2,887,732	5,165,289	1955	1,807,999	1,113,564	2,921,563
1940	2,207,818	3,642,884	5,850,702	1956	1,730,449	825,013	2,555,462

You will note that over a period of 31 years, we have gone from a high production in 1945 of 9,836,798 tons to a low in 1956 of 2,555,462 tons. To further clarify the situation at the close of 1956, we submit the following:

Total tonnage produced

	Rail mines	Truck mines
Commercial	1,663,480	66,969
Captive	825,013	

Wartime demand in the year of 1945 established alltime production from our captive operations—6,540,784 tons, of which approximately 98 percent was consumed as railroad fuel. Since that time production of coal for railroad fuel has decreased at a rapid rate due to dieselization program of the Union Pacific Railroad.

While 1945 was not the peak for our commercial operators, it was the sixth highest production year since 1925. However, since 1945

our commercial production has declined, the year of 1956 being the second lowest year in a 31-year period. This continual decline in commercial operation can be concisely explained in this manner: Coal is rapidly being replaced by other types of fuels, particularly in the fields of home consumption and small industrial concerns. Price of other types of fuels in our natural sales markets continues to be an important competitive factor, and the factor of convenience of use of other fuels is gaining in importance.

In an effort to meet price competition of other fuels, the coal producers in all the coalfields of Wyoming have strived to improve their methods of mining so as to produce coal to be sold at prices which would show markedly low margins of profit, and in some instances coal was sold at breakeven levels or below cost. Tonnages produced mechanically have gone from a 23-percent of total production in 1925 to a percentage of 99 percent in 1956. Even with this type of effort toward lowering production costs our operators have been unable to compete with other types of fuels in our sales markets.

In my own community of Rock Springs in Sweetwater County we have witnessed to date—and that would be today—the closing of 3 commercial mines and 4 captive mines since December 31, 1953. The coal mines have always been an important source of basic income to the Sweetwater County economy. The basic contribution of coal in 1953 was $11,860,000. Payrolls accounted for $8,529,000 of it. The expenditure of this money in the county resulted in $20,910,000 worth of business being generated. Each coal mine employee supported one other person in our business economy. Thus, it is easily seen that since December 31, 1953, the economy of Sweetwater County has been vitally affected.

Those of us who have been connected with the coal-mining industry in Wyoming have long felt the need of a well-integrated research program both from an industry and governmental approach. Limitations of our operators have prevented an industry type of research program so we have had, and must continue to look to our State and Federal Governments for research assistance and activities.

Several years ago when the research program relative to the hydrogenation of coal was undertaken by the Bureau of Mines we were very much heartened, feeling this might be one means to help retard our declining coal productions.

We were particularly hopeful when in 1951 the Department of the Interior, through the Bureau of Mines, directed Ebasco Services, Inc., of New York, to prepare a report covering certain elements of cost estimates for coal hydrogenation, such evaluation having as its ultimate objective the determination of the selling price of gasoline and liquefied petroleum gas produced by the coal hydrogenation method. Specific studies were made for Wyoming and west Kentucky, contemplating a capacity of 30,000 barrels of liquid fuel products per calendar day. In order to take account of the variation in product yields from different types of coals, and of construction and operating conditions which might cause differences in both design and capital costs, two plant locations were selected by the Bureau of Mines and cost estimates prepared on both plants.

The location at Rock Springs, Wyo., was selected as typical of a plant based upon the coals available in that general area and repre-

sentative of regional conditions affecting construction cost and other factors such as transportation, housing, labor, water supply, and market for product. Similarly, Union County in western Kentucky was selected as representative of coal supply, construction cost, and operating conditions of the Ilinois-Indiana-west Kentucky region.

Ebasco spent several months on the project. They were aided by outside experts on such phases of the investigation as hydrogen compression and purification and manpower requirements. The completed report was studied by both the Bureau of Mines and the National Petroleum Council but it seems to have passed into the great beyond very rapidly.

The possibilities of this report and type of program should be reevaluated and efforts made toward establishing a coal hydrogenation and chemical byproduct industry. Certainly the shadows of recent events in the Middle East should get us to thinking about standby protection.

Here I would like to insert that we are spending heavily on a defense program which I agree is most necessary, but it appears that we are not including coal in this type of program. Coal in its natural state would naturally play an important part in any future emergency, but it would also be called upon to produce a myriad of synthetics that can come from coal and would be needed in any emergency defense program.

In closing, I would like to state we endorse the following resolution of the National Coal Association relative to the coal industry's policy on research:

1. That a coal research commission be established consisting of representatives of the coal industry, major coal-using industries, representatives of government, and such other representatives as may be necessary in order to provide proper representation by all parties interested in the establishment and progress of a coal research program. The responsibilities of this commission would be—
   (*a*) To undertake a thorough and objective appraisal of the present status of research and development relating to coal production and use.
   (*b*) To evaluate the effect which various trends will have on future markets for coal and coal utilization technology.
   (*c*) To formulate, on the basis of these appraisals, a strong program of research and engineering development projects on coal production, distribution, and utilization.
2. That Congress provide ample funds for conducting such coal research program, with provision for using such funds in part for contracting with non-Government research organizations.
3. That provision be made for joint evaluation at certain specified periods of the progress made and consideration given to such program changes as may from time to time be indicated.

Thank you for your patience and time.

Mr. EDMONDSON. Thank you very much.

I would like to ask unanimous consent at this time that the table appearing directly following the statement, entitled "Summary for Period 1925–56, Inclusive, for the State of Wyoming" be made a part of the record at this point.

Hearing no objection, it is so ordered.

(The table referred to follows:)

Summary for period 1925 to 1956, inclusive, number of mines in operation, average number of men employed, production tons produced by mechanical means in the State of Wyoming

Year	Number of mines in operation (deep and strip) [1]			Average number of men employed			Tonnage produced			Tonnage produced by mechanical means	
	Commercial	Captive	Total	Commercial	Captive	Total	Commercial	Captive	Total	Tons	Percent of total produced
1925	43	[2] 17	60	3,963	2,401	6,364	3,777,908	2,779,669	6,557,577		
1926	40	[2] 17	57	3,715	2,197	5,912	3,718,160	2,777,656	6,495,816	1,472,935	23
1927	56	[2] 16	62	3,564	2,075	5,639	3,989,172	2,749,390	6,738,562	2,013,449	30
1928	46	[2] 12	58	3,009	1,759	4,768	3,624,246	2,928,929	6,533,175	2,811,588	43
1929	50	[2] 12	62	3,123	1,958	5,081	3,637,455	3,062,324	6,699,779	3,255,405	49
1930	58	[2] 11	69	3,031	1,837	4,868	3,256,749	2,814,020	6,070,769	2,954,867	49
1931	74	[2] 11	85	2,862	1,813	4,675	2,545,523	2,454,843	5,000,366	2,798,320	56
1932	82	[2] 10	92	2,483	1,753	4,236	2,123,148	2,045,271	4,168,419	2,739,868	66
1933	90	[2] 10	100	2,082	1,710	3,792	1,907,044	2,097,558	4,004,602	3,123,501	77
1934	97	[2] 9	106	1,954	1,824	3,778	1,974,238	2,402,553	4,376,791	3,755,193	86
1935	84	[2] 8	92	2,004	2,086	4,090	2,277,557	2,887,732	5,165,289	4,692,996	91
1936	97	[2] 8	105	2,475	2,276	4,751	2,504,860	3,286,160	5,791,020	5,330,497	92
1937	98	[3] 10	108	2,380	2,616	4,996	2,623,370	3,326,860	5,950,230	5,474,933	92
1938	102	[3] 11	113	2,455	2,413	4,868	2,156,241	3,062,813	5,219,054	4,903,138	94
1939	125	[3] 10	135	1,903	2,384	4,287	2,100,338	3,310,680	5,411,018	5,118,924	95
1940	126	[3] 11	137	1,976	2,345	4,321	2,207,818	3,642,884	5,850,702	5,557,220	95
1941	111	[3] 11	122	1,941	2,565	4,506	2,348,897	4,321,911	6,670,808	6,377,630	96
1942	103	[2] 11	114	1,999	2,777	4,776	2,819,893	5,334,968	8,154,861	7,824,785	96
1943	57	[3] 12	69	1,721	2,954	4,675	3,030,437	6,207,292	9,237,729	8,888,176	96
1944	59	[3] 12	71	1,613	2,971	4,584	3,206,543	6,353,050	9,559,593	9,333,157	98
1945	54	[3] 11	65	1,693	3,121	4,814	3,296,014	6,540,784	9,836,798	9,085,253	92
1946	45	[3] 11	56	1,667	2,833	4,500	2,946,907	4,669,774	7,616,681	7,530,650	99
1947	41	[3] 12	53	1,451	2,897	4,348	3,001,108	5,053,643	8,054,751	7,966,466	99
1948	41	[3] 12	53	1,514	2,698	4,212	2,581,842	3,826,460	6,408,302	6,345,592	99
1949	38	[3] 12	50	1,484	2,330	3,814	2,524,619	3,448,021	5,972,640	5,904,184	99
1950	33	[3] 9	42	1,106	2,492	3,598	2,492,655	3,849,244	6,341,899	6,295,122	99+
1951	33	[3] 9	42	801	2,386	3,187	2,410,696	3,877,461	6,288,157	6,246,872	99+
1952	35	[3] 9	44	730	2,173	2,903	2,588,582	3,158,367	6,106,949	6,081,956	99.5
1953	27	[3] 7	44	906	1,882	2,788	2,036,563	3,207,152	5,243,715	5,228,675	99.7
1954	31	[3] 4	35	788	744	1,532	1,698,039	1,135,314	2,833,353	2,814,896	99
1955	26	[3] 4	30	444	535	979	1,807,999	1,113,564	2,921,563	2,914,837	99
1956	20	[3] 4	24	478	538	1,016	1,730,449	825,013	2,555,462	2,551,405	99

[1] Includes rail and truck mines.
[2] The Union Pacific Coal Co. (Subsidiary of the Union Pacific RR. Co.).
[3] The Union Pacific Coal Co. and the Monolith Portland Midwest Co.

Compiled from annual reports of the State inspector of coal mines of Wyoming.

Mr. STEILING. Mr. Lucas represents the area of our State served by the Union Pacific. Very many times in casual conversations the general public sometimes gets the idea that all of the coal in Wyoming is located along the Union Pacific. So we have with us today a gentleman from the northern part of Wyoming, which also has had a very important impact from the coal industry.

I would like to introduce to you at this time Mr. George Nugent of the Big Horn Coal Co. in Sheridan, Wyo.

STATEMENT OF GEORGE NUGENT, BIG HORN COAL CO., SHERIDAN, WYO.

Mr. NUGENT. Chairman Edmondson and members of the committee, I do not have a prepared report to give. I would like to give some oral testimony and would like to prepare a report to submit to the committee later, if that is acceptable.

We do have available an abundance of factual information from which we can make a report we believe you would be interested in.

About all I would expect to do today is carry on a little further on what Mr. Lucas has said, but pinpoint it to the area of northeastern Wyoming.

To give you a little history of the background of the coal industry in northern Wyoming, up to 1925 there were nine active commercial mines in that area.

I would like to say here that I am restricting my remarks to railroad shipping mines for what I am saying this afternoon.

Due to new mining methods, mines were reduced in number in the Sheridan area from 1925 to 2 mines. I believe the Sheridan area was one of the leaders in mechanization.

From 1925 until 1940, these two mines took care of the production of the Sheridan area.

During the year of 1941, 1 of these 2 mines was closed down, and there was only 1 mine active for a period of 3 years, at which time the Big Horn Coal Co. opened up a mine in the area; and from 1944 through 1952, there were the 2 operating mines. In 1952 one of these mines shut down, with the Big Horn mine being the only remaining rail shipping mine now in the Sheridan area.

I would like to give you a little information regarding tonnage to supplement what Mr. Lucas said, although this will be for the area up there only.

The production of coal from 1921 through 1930, was quite consistent. The total tonnages ranged from 700,000 tons per year to 830,000 tons per year.

The railroad tonnage during that same period was also quite consistent and continued to be so at around 400,000 tons per year.

Starting in 1930 coal production started to dwindle in that particular area and production dropped from the 700,000-ton mark down to a low of 380,000 tone in 1933.

Coal production then started on the increase and returned to the 700,000-ton figure in 1943.

Then during the war period, the Sheridan district was called on for additional tonnage. The Hanford Engineering Works was in need of coal, and a lot of the coal for this installation came from Sheridan.

At that time the tonnage produced in the Sheridan area increased from 700,000 tons to a high of 1,300,000 tons in 1946. It stayed in the 1-million-ton bracket until 1949, which was the last year that the Sheridan area participated in supplying coal for the Hanford Engineering Works.

The coal then dropped to 800,000 tons in 1950; 600,000 tons in 1951; 550,000 tons in 1952; 500,000 tons in 1953. In 1954 it dropped to 400,000 tons; remained there through 1955; and in the past year it has dropped during 1956 to 380,000 tons.

One of the main users of the Sheridan district coal over the years had been the Burlington Railroad using coal for engine fuel. Their trackage out through northern Wyoming was the last place in which they started dieselization. This was commenced in 1945 and 1946.

In 1945, which was comparable to what had been used in the past, the railroad tonnage was 450,000 tons per year. The dieselization program for the next 3 years, to 1949, had more or less of a slight effect, and the railroad tonnage dropped to 350,000 tons. This program was speeded up and, by 1953, 100 percent dieselization had taken place, and the Burlington since that time has taken no coal for engine fuel. The railroad did, however, in 1953, use 70,000 tons of coal which was used strictly for heating purposes, which included their stations, and also certain roundhouse facilities.

The roundhouse facilities later were converted to other types of fuel, and by 1956 the only remaining coal furnished to railroads—and most of this was to the Great Northern rather than the Burlington—was for station use. The tonnage for railroad coal dropped from a high of 500,000 tons to the present tonnage in 1956 or 16,000 tons.

The other commercial coal, which would include other industries other than railroads, plus domestic business, has been fairly consistent since 1940 to the present time, with the exception of the period through which coal was being produced for Hanford at wich time it was up to nearly 900,000 tons.

In 1956 the tonnage for commercial users, which includes coal for home heating, was 365,000 tons.

Our area is located in such a way that we have no industry close to Sheridan. All of the coal that is produced in that area, with the exception of 5 percent, is shipped out of the State of Wyoming.

Our trade area is controlled by freight rates, and as costs increase on a per-ton basis due to the fact that we do have a subbituminous coal, our territory shrinks. We find ourselves in that particular area about halfway between lignite and good bituminous coal, and any increases tend to shrink our particular trade area.

Other than railroads, some of the recent developments in losing coal tonnage in our particular area has been the power that has become available throughout our particular trade area from three-purpose dams. We find a situation where the private utility companies are in the situation of where they are required, as I understand it, to take on the surplus waterpower that the Government does have available at times.

In one particular utility that we furnish coal to this situation has just arrived at that plant, and they will be about 50 percent on waterpower. They will be 50 percent on coal. This particular industry purchases 20 percent of our output. So we are anticipating a 10-percent reduction this coming year in our coal output.

We are very hopeful in our district. We are very low on population. We do have a very good labor market in our section of the country. We do have ample water. We are hoping that the increase in population will do something to bring industries closer to us, to where we can be competitive.

As far as home heating is concerned, that business is entirely all gone to other types of fuel.

That is about all I have to say at this time, just to give you a brief history of the Sheridan area.

We do have two preparation plants at Sheridan now, one which we are operating, one that was closed down in 1952. If the need came for coal, the present operation could produce something close to 2 million tons per year. It would take a matter of at least a year to get the other facility in operation.

As far as the other mines that were in the Territory are concerned, it would be practically impossible to open the mines up. They have been completely abandoned. The camps that were built for them originally have been removed. The mines, I am sure, are all flooded and caved in. There are no tippling facilities, other than the two we have.

That would be the picture in case we were called upon for coal.

In closing, I would like to say that we do concur in John Lucas' report, and we also endorse the National Coal Association recommendation to the committee.

Thank you.

Mr. EDMONDSON. Thank you, Mr. Nugent.

Mr. STEILING. The testimony of the next two witnesses is very brief. The next two witnesses are more or less to supplement what has been said. However, they are here today to represent those individuals who came to provide you with additional information if the committee so desires.

First is Mr. Jim Carroll, who is president of the Sheridan, Wyo., Chamber of Commerce.

STATEMENT OF JIM CARROLL, PRESIDENT, CHAMBER OF COMMERCE, SHERIDAN, WYO.

Mr. CARROLL. Chairman Edmondson and honored Congressmen, it is certainly a great deal of pleasure on my part to be here and see a committee function. I have been quite impressed with what I have seen here today, and I certainly have hopes that something will come out of this hearing that will help our coal industry.

My principal reason for being here today is possibly because I am president of the Sheridan Chamber of Commerce, and quite interested in the coal industry as such.

My background is from a coal-mining family. My dad brought me to what is known as Old Dietz in Sheridan when I was a year old, and quite some time ago.

All of my family worked in coal mines, and I myself shoveled coal and dug it with a pick and laid track and drilled holes and shot it. So I know just a little bit about the oldtime method of digging coal.

The mechanization that is in progress right now I haven't any knowledge of at all.

I can remember back in the early days in Sheridan that at one time in our fields there were approximately 4,500 or 5,000 people, that is, living in Sheridan, and possibly from 1,000 to 1,200 men employed in the mines. Of course, that was in the early days.

The mines, as Mr. Nugent has told you, and all of these other fellows have told you—what I would say would be just repetitious, and I will not go into that.

However, the thought has occurred to me in listening to the testimony here, and in learning of other things that have been going on, that somebody is missing the ball.

Millions have been spent for research in a lot of different things in our own country. Millions have been spent for research. A lot of money—I hesitate to use the word "needlessly," but, well let's use it—has been spent needlessly on the construction of dams where the cost per acre for power and irrigation is just fantastic.

Yet, under the feet of the people in Wyoming we have unlimited reserves of coal, coal that can produce energy and will produce livings for the families.

In our own area, which is sometimes referred to in Wyoming as the garden spot of Wyoming, it is a lovely place to live, and people hate to leave there. We have lost a lot of people because of the shutting down of the coal mines.

I do heartily endorse the work of this committee. I hope they can find some use for coal. Surely they have found uses for a lot of things—corncobs, for instance—and it seems to me they could find some use for coal. I hope you gentlemen will be instrumental in starting the ball rolling.

Thank you very much.

Mr. EDMONDSON. Thank you, Mr. Carroll.

Mr. STEILING. I think you noticed Mr. Carroll has a typical chamber of commerce attitude.

I also might mention, despite the fact he did not have a written statement, he is the owner of a radio station in Sheridan and is president of the Wyoming Broadcasters Association. I do not know what he is going to do about recording this meeting without a written statement.

The next gentleman is a gentleman who is probably best qualified in our State from the standpoint of actual mining operation. In fact, for the past 16 years he has been our State coal-mine inspector. Mr. Lyman Fearn.

STATEMENT OF LYMAN FEARN, STATE COAL-MINE INSPECTOR, WYOMING

Mr. FEARN. Chairman Edmondson, Congressmen of the panel, and coal miners, it gives me a great deal of pleasure to come here today and represent the State of Wyoming and the coal industry of Wyoming.

Members of the panel have recorded very forcibly the condition of the coal industry as it now exists in the State of Wyoming, but I would like to go back for a little bit and tell you some of the things that I think are vital to the State and have been for the coal industry.

We have since 1907 in the State of Wyoming, been practically 100

percent unionized. We have had a splendid relation with the United Mine Workers of America. Our labor relations have been fine. We have a splendid group of miners in that State, and they are able to produce coal if they are given an opportunity to do so.

We were the first State in the United States to become affiliated with the United States Bureau of Mines in making State-Federal inspections, what we call a joint inspection of the Federal Government. Our State is now under that contract and has been since 1952.

Our relations with the Federal Government are very fine, and we think our mines are reasonable safe, our record is reasonably good.

I noticed this morning there was a question asked by Congressman Saylor—what would occur if we were put into war and we needed coal production in a hurry?

We would be rather short of making that production. One of the reasons is that we do not have the present mining facilities to do it, and the next is that we will not have the manpower to do so.

Our manpower is dwindling. Our young men are not given an opportunity to go in the mines. They will not go in if they are given the opportunity, because the industry is not stable.

One of the saddest things that has occurred in the coalfields in my State—there have been 16 communities, each having a population of from 200 to 1,000 people, closed and dismantled in the past 10 years.

The operators of our State have been what we call on their toes. Our mechanization has gone forward. We have been foremost in the front of mechanization. For the last 20 years we have produced 90 percent of our coal, or over—we are now producing 99 percent of our coal—by mechanization. So they have not been behind in trying to mechanize their mines. And as you were told by Dr. Fisk, our production costs are in line with any in the country.

Now, over the years, a 10-year period from 1941 to 1950, our average production was 7,786,397 tons. Our peak manpower was 9,192. Our production has gone down 68 percent. Our manpower has gone down 90 percent. So you see we are in a bad condition so far as the coal industry is concerned.

We realize that we cannot stop progress, and we realize that the Congress of the United States and those men in power in the State are doing all they can to help and bring our coal industry where it should be.

We have a splendid resource of coal in our State, and we have a splendid State, and we would be glad and happy to see something brought about that could bring production back to the State, and particularly to those communities that now have so many unemployed.

One of the sorry things in my life is to go to the town of Hanna at the present time. Hanna has a population of about a thousand people now. There are some 200 men there, or thereabouts, that are on social security or unemployment compensation.

The community, as far as resources is concerned, has none except what is coming from that source. To we who have spent our lives in the coal industry, this certainly is a sorry sight.

That can be duplicated, as I tell you, in 12 or 13 communities within our State.

Now these men of the panel have presented their case very forcibly. I would like to insert in the record my annual report for 1956. I am sorry I do not have it here, only in this form, but I will have copies

from the printer, and I would like to have the privilege of presenting it to you for evidence at your meetings in the future.

It is in the hands of the printers, and I will get it in maybe a week or 10 days.

Mr. EDMONDSON. If you will send it in to us, Mr. Fearn, or send it in to Congressman Thomson, who certainly maintains a constant liaison with this committee and is very active before it, we will be very pleased to see that such parts of it that are not duplicated already by testimony will be made a part of the record.

Mr. FEARN. That will be fine. I do not wish to go further, but will be glad to answer any questions that the committee would like to ask me, if it is within my power to answer them.

Mr. EDMONDSON. Does that complete your presentation, Mr. Steiling?

Mr. STEILING. No, sir.

Mr. EDMONDSON. We will come back to you after the presentation for the questions.

Mr. STEILING. Thank you, Mr. Chairman. This completes one phase of it, but we would like to proceed with the second phase in order that it may be complete.

Mr. EDMONDSON. Fine.

Mr. STEILING. I think the following testimony is something that should be of interest to the committee, because I believe it is something a little different than has been heard here today.

In Wyoming we are trying to do something about this matter, and the next two witnesses will try to explain to you what we are doing, and some problems and some suggestions from the State of Wyoming as to how this committee can be of assistance, because we have found a number of very real problems.

Quite a little bit has been said today about the future of the power industry in utilizing coal. We have with us a gentleman who has been directly concerned with the establishment of a new power industry in the State of Wyoming. It is the first large-scale operation and one that we are watching with considerable interest. They are a large potential power user, but they have faced a few problems that I think are of interest to this committee, because I think the activities of this committee can be of great assistance to not only this development, but to the future development of industries of this kind, not only in Wyoming, but in the surrounding States.

I will introduce to you Mr. Veryl Hoover, of Casper, Wyo., who is general manager of the Wyoming division of the Pacific Power & Light Co.

STATEMENT OF VERYL HOOVER, GENERAL MANAGER, WYOMING DIVISION, PACIFIC POWER & LIGHT CO.

Mr. HOOVER. Mr. Chairman and members of the committee, my company is engaged in the production, transmission, and distribution of electric power in the State of Wyoming, as well as Oregon, Washington, Montana, and Idaho. Our general offices are located in Portland, Oreg.

I might say that we are intensely interested in the economic development and industrial development of the State of Wyoming, and

stand ready and willing to participate in any possible way that we may.

We are interested in Dr. Fisk's research on coal byproducts at the University of Wyoming, and we are participating financially to assist him in that work.

For many years, the Pacific Co.'s principal electric requirements were purchased from the United States Bureau of Reclamation electric plants. A rapidly increasing demand for electric, together with the nearly complete development of hydro sites in the State, has made it necessary for our company to develop our own sources of power supply.

In July of last year we started construction of a 100,000-kilowatt steam electric generating plant in Converse County, Wyo. This plant will be completed not later than the fall of 1958. We will use for fuel in this plant, not gas, but native Wyoming coal. I might add that unit will utilize approximately 500,000 tons of Wyoming coal annually.

We find it now necessary to meet further increasing demands for power for industry as well as other uses, to seek locations for further coal-fired generating units over the State of Wyoming. We know there are vast resources of coal in the State, and approximately 70 percent of this coal is on Government land. However, in order to determine the most economic location for these plants to supply power to industry and residents of Wyomng at the lowest possible cost, and also be competitive with the United States Bureau of Reclamation power, it is necessary to spend large sums in prospecting and drilling on these Government lands.

In selecting locations over the State for these additional plants, we are confronted with the problem of having acreage for the prospecting and filing.

For the type of coal and type of mining that must be undertaken to produce fuel for low-cost electric energy, large expenditures must be made, and also the opportunity must be provided to prospect and carry on drilling and testing operations over large areas.

We sincerely believe that, in the interest of making available competitive-cost energy to induce industry location and development in the State and so that residents of Wyoming may be supplied by electric energy at reasonable cost, that the acreage limitation of 5,120 acres in the State should be substantially increased. This would aid and encourage the coal byproduct development research as well as all industries requiring low-grade, low-cost fuels.

In reference to Mr. Allen's statement this morning regarding the possibility of large coal developments being opened up to produce electric power for transmittal to other areas of the West and South, this could very well happen in Wyoming very soon.

My company is willing and able to develop new sources of electric power and use coal for the firing of these generators. But the restrictions as to acreage limitations must be relieved, and we must be permitted the opportunity to explore and establish sufficient fuel reserves to back up our plants and investment.

Thank you.

Mr. STEILING. I would like to now present once more Dr. Fisk, and with him his research associate from the Natural Resources Research

Institute, Dr. Ralph Law. I believe we are one of the few States in this area that sponsor a full-time coal research program, and Dr. Law in this recent article here which will be handed to you, and not read, has somewhat a different approach than has been previously used.

I would like to present at this time the director of the Research Institute, Dr. Fisk, for a little explanation of that.

Dr. FISK. The committee has in your hands this part 2, which sets forth in a brief manner the research program that we have been carrying on at the University of Wyoming on behalf of the coal industry, that is, on behalf of our western coal industry, because our western coals do differ substantially from the coals in the East with which most of you gentlemen are more familiar.

I might say, in introducing this subject of research, that there are two general methods of processing coal.

You are, of course, all familiar with these approaches.

First is the approach that Mr. Lucas mentioned, on the hydrogenation of coal. Now the hydrogenation of coal can be carried out in different degrees; that is to say you can aim at complete conversion, which was the method that was undertaken in the Bureau of Mines studies referred to by Mr. Lucas, or one can aim at chemical products, and that is the approach that the Carbide & Carbon chemical people are pursuing.

The other general method of getting the values all out of coal beyond their fuel value is that of carbonization, where a tar is produced as a byproduct, we might say, of the char.

The char can be burned as a fuel in powerplants; it can be used as a metallurgical reductant in certain metallurgical operations, and so forth. However, we have followed this second approach in our own program for the reason that we feel the Government laboratories have pretty well covered the hydrogenation process, and we feel that the Carbide & Carbon Co. are pretty well covering the hydrogenation process as aimed at chemicals rather than fuels.

So we started an investigation of low-temperature tars. These tars that we have been working with have been produced by the Bureau of Mines at Denver. They have developed the fluidized carbonization system there, and we think this is a very efficient and effective manner in carbonizing coal, and in deriving from that coal the tars in the process.

Dr. Law of our institute has found that by a mild hydrogenation treatment of this coal tar, he is able to make a sort of a synthetic petroleum, we might call it. It resembles petroleum very much in its characteristics, and its chemical constitution, and it can be handled in very much the same manner by an oil plant or refinery, can be treated very much in the same manner that low-grade petroleum can be processed.

As exhibit A of this second part of the testimony in your hands is a brief of Dr. Law's work, the background and the objectives, and the purposes of this work.

I think, gentlemen, with that information at your disposal, unless there are questions, that I shall terminate this part of the discussion.

Mr. STEILING. Dr. Law is here and will be available for questions if you gentlemen so desire.

Mr. EDMONDSON. If there is no objection, the document identified as exhibit A, entitled "The Case for Low-Temperature Coal Tar" will be made a part of the record at this point.

(The document follows:)

EXHIBIT A

THE CASE FOR LOW-TEMPERATURE COAL TAR

(By Ralph D. Law, petroleum research chemist; assistant professor, petroleum process engineering)

INTRODUCTION

For nearly 35 years, almost continuous investigations have been carried on concerning the nature of low-temperature coal tars and possible means by which these tars may be utilized. Hundreds of articles have been published giving valuable information concerning the constitution of low-temperature coal tars and hundreds of patents have been issued by various governments over the world on processes by which the tars may be used to produce useful products. These many investigations have disclosed that low-temperature coal tar is perhaps the most complex mixture of carbonaceous materials ever faced by science and industry. These investigations have also disclosed the mixture contains polyfunctional compounds whose exact structures are not known in organic chemistry. However, the presently available information points out a few singular facts concerning processing difficulties. The facts indicate a high proportion of oxygen which is contained mainly in the so-called tar acids, and considerable sulfur which seems about equally distributed among the various types of compounds contained in the mixture. The problems caused by oxygen and sulfur are shared by shale oil and the sulfur problem is shared by and even exceeded by petroleum crude oils. Many investigations have shown that low-temperature coal tars more nearly resemble heavy petroleum crude oils than they do the high-temperature coal tars obtained by cooking processes used in making metallurgical coke. Therefore, low-temperature coal tars should be compared with shale oil and black petroleum crude oils, which are competitive sources of carbon chemicals.

We are a Nation greatly dependent upon carbon for both fuels and chemical raw materials. More than 60 percent of our power is in mobile forms, and this depends primarily upon carbonaceous fuels. We have a huge and rapidly expanding organic chemical industry which will make larger and larger demands for original supplies of liquid carbonaceous materials. As our resources of high-grade crude oil diminishes, the above three sources of carbon will have to be utilized to aid in our carbon economy.

In comparison with the production of shale oil and black petroleum oils, there are advantages in favor of low-temperature coal tars. About the same quantity of oil or tar is obtained from shale or from coal, but the char derived from coal carbonization leaves a valuable fuel as a by-product, while the heat treatment of shale leaves a mineral material of little or no value and which constitutes a serious disposal problem. Coal may be mined at a cheaper rate per ton than black oil can be obtained by drilling 1 successful well from 9 attempts, which is the United States average. These oils are all alike in that they are all deficient in hydrogen content, but, by the addition of a small weight percent of hydrogen, these three oil sources become good processing oils. The advantage lies with hydrogen treated synthetic crude oil derived from low-temperature coal tar because this material contains a greater variety and greater quantities of compounds which may be separated and sold in the higher priced chemical market.

CHEMISTRY

Low-temperature coal tar lends itself readily to a low order of hydrogen treatment. The material contains many ether and ester linkages which are quickly severed by hydrogenolysis at a relatively low level of activation energy. The oxygen- and surfur-containing functional groups are highly reactive and react with the hydrogen readily. The reactive groups are reduced at an activation energy about the same or only slightly higher than for hydrogenolysis of oxygen and surfur intermolecular linkages. The synthetic crude oil resulting

from the hydrogen treating process is composed of several series of molecular species which are only a fraction of the molecular size of the huge molecules and macromolecules contained in the original tar. Sulfur is practically eliminated as hydrogen sulfide, carboxyl and carbonyl groups are eliminated as water or are reduced to hydroxyl groups, and the troublesome amino groups are reduced to ammonia. Some hydrogenolysis of tertiary and quaternary carbon occurs at the same time which adds to the quantity of small molecular species in the synthetic oil. The smaller compounds of the product oil contain a large proportion of carbon structures possessing cyclic nuclei. These cyclic components of the oil are easily dehydrogenated to aromatic nuclei, resulting in a product that is predominantly an aromatic oil. Conditions for the reaction must be selected so that conditions will favor the formation of aromatics, at least to the extent of dehydrogenation of the cyclic naphthenes and olefins.

Investigations on the hydrogen treating of a reconstituted low-temperature tar and a creosote oil derived from lignite coal have been conducted in this laboratory for nearly 2 years. Over 200 batches of these materials were reacted with hydrogen over a cobalt-molybdena catalyst under varied conditions of time, temperature, pressure, and hydrogen-oil ratios. The yields of synthetic crude oil obtained, under conditions considered optimum for producing high yields of phenols and aromatic hydrocarbons, varied from 95 to 131 percent by volume. The average yield was found to be between 110 and 120 percent by volume based on the original volume of the tar used. The increase in volume was due to the larger volume of the hydrogenated products. The average yield of phenols and aromatic compounds based on the synthetic crude oil was 12 percent and 65 percent, respectively. The amount of hydrogen retained by these under the above-mentioned conditions varied from 1.6 to 2.1 percent or the weight of the tar. These observations are in accord with published results from various laboratories which show the amount of hydrogen retained by the products of the reaction of hydrogen with low-temperature tar was 1.7 to 2.0 percent of the weight of the starting material. In an industrial operation, this hydrogen retention would amount to 1,200 to 1,500 cubic feet of hydrogen per barrel (42 gallons) of crude tar reacted.

PROCESSING

Treated as a crude oil, low-temperature coal tar can be processed by any of several systems well known to the petroleum refining industry, requiring only slight modification of equipment and operating procedure. The system of processing discussed in this paper follows the stepwise procedure used in this laboratory in our work on low temperature coal-tar research.

The first step in processing of the tar is its treatment with hydrogen under moderately high pressure, namely 750 p. s. i. g. or more. The reactions occurring between the hydrogen and the tar will remove excess oxygen, sulfur and amino nitrogen, yielding a petroleum-like synthetic crude oil, from which may be distilled (about 65 percent by volume,) a naphtha, boiling below 250° C. (482° F.), rich in aromatics and phenols. The hydrogen-treating plants now used for the upgrading of lubestocks, cracking, feed stocks, diesel fuels, etc., are well suited for treating low-temperature tars and little alteration seems necessary for this purpose. The distillation can be carried out with an ordinary petroleum topping tower. The bottoms product from the still, about 35 percent of the synthetic crude, could be recycled with the tar feed stock, carbonized, or treated otherwise. The naphtha is transferred to a system of liquid-liquid counterflow extractors where amines, phenols, and aromatic hydrocarbons are removed. The raffinate can be transferred to a reforming unit where further conversion to aromatics will take place or, in case it is carried out in conjunction with a refinery, transferred to the liquid fuels department. The phenols and aromatic hydrocarbons are then fractionated into various cuts which are purified by secondary fractionation, stripping and stabilizing. Because of the small quantity of amines obtainable, it would seem advisable to sell this fraction as a crude mixture to a chemical-producing concern.

The recycle oil has been found to yield the same products in much the same quantities upon further hydrogen treatment. Hence, recycling the still bottoms seems a profitable operation. The bottom oil, having been partially converted by the initial hydrogenation reactions, requires much less hydrogen to bring about conversion to desirable products than the original tar. The extractions can be carried out by modification of equipment and processes now in general use in the petrochemical industry.

PRODUCT AND PRODUCT VALUES

The composition of the hydrogen-treated naphtha fraction obtained in this laboratory is listed in table I. The yields of this naphtha varied from 63 to 71 percent of the synthetic crude oil.

TABLE I.—*Composition of naphtha fraction*

[Boiling range 65° to 482° F.]

Type compounds	Percent naphtha cut	Percent synthetic crude
Arenes	41.0	26.7
Paraffins	39.0	25.4
Phenols	18.0	11.7
Amines	2.0	1.4

The composition of the neutral oil or hydrocarbon fraction of the naphtha cut is shown in table II.

TABLE II.—*Composition of aromatic hydrocarbon fraction*

Name of compound	Percent total arenes	Percent naphtha	Percent crude
Benzene	20	8.2	5.3
Toluene	40	16.4	10.7
Ethylbenzine and xylenes	20	8.2	5.3
Undetermined	20	8.2	5.3

The distribution of the phenols in the tar acids fraction is shown in table III.

TABLE III.—*Composition of the phenol fraction obtained by extraction of the naphtha cut*

Name of compound	Percent acid fraction	Percent naphtha	Percent crude
Phenol	25.0	4.5	2.9
Cresols	30.0	6.3	4.1
Ethyphenol and xylenols	35.0	7.2	4.7
Heavy phenols	10.0	.9	.6

An attempt is made in table IV to give a clear picture of the value of the products obtained from a single run, without recycle, by the system of refining outlined above in this paper. The prices listed in the tables were taken from the price listings quoted for the latter part of the year of 1956. Because there is a constant fluctuation of prices in the chemical market (with an upward trend), it is possible that these prices are already somewhat lower than today's prices. However, the values listed in table IV are sufficiently exact to give a good indication of the value of the products and lend a satisfactory estimate of the value of the process described. The value per barrel or per 1,000 barrels seems to provide a substantial margin over ordinary refinery costs and suggest a probable profit from refining low-temperature coal tars. No mention has been made of the gaseous products obtainable from the hydrogen treating process. Considerable quantities of ammonia, sulfur, methane, ethane and LPG are byproducts which can add to the profit margin.

TABLE IV.—*Products and product values*

Product	Percent of synthetic crude	Gallons per 100 gallons synthetic crude	Value per gallon	Value per 100 gallons	Value per 42-gallon barrel	Value per 1,000 barrels
Benzene	5.3	5.3	$0.40	$2.60	$1.09	$1,090.00
Toluene	10.7	10.7	.40	4.28	1.80	1,800.00
Ethylbenzene and xylenes	5.3	5.3	.30	1.59	.67	667.80
Undetermined arenes	5.4	5.4	.30	1.62	.68	680.40
Phenol	2.9	2.9	1.28	3.71	1.56	1,560.00
Cresols, crude	4.1	4.1	.48	1.97	.83	830.00
Ethylbenzene and xylenols, crude	7.2	7.2	.48	3.46	1.45	1,450.00
Paraffins	25.3	25.3	.11	2.78	1.16	1,160.00
Recycle oil	35.0	35.0	.10	3.50	1.47	1,470.00
Amines, crude	2.0	2.0	.50	1.00	.42	420.00
Total	100.0	100.0		26.51	11.13	11,130.00

OPERATIONAL COSTS

In evaluating the operational costs of a process where hydrogen is a reactant, first consideration should be given to the cost of hydrogen production. This laboratory has been in communication for several years with 5 large fabricators of refinery equipment who have been building hydrogen production plants since 1928. These 5 companies have stated in their communications that hydrogen can be produced by reacting natural gas with steam at a cost of 25 cents per thousand cubic feet; and, by reacting steam with heavy oil residues, hydrogen can be produced at a cost of 35 cents per thousand cubic feet. These companies further stated that the power requirements for pressurizing hydrogen and, therefore the costs, are proportional to the logarithm of the final pressure expressed in atmospheres. This power-cost proportion has been confirmed by several textbooks dealing with high-pressure chemical plants.

Considering the hydrogen production as indicated above a cost of 40 cents for production of hydrogen to treat a barrel of tar is considered reasonable. The cost of 60 cents for hydrogenation per barrel of tar processed is thought to be reasonably accurate. These costs will vary with the hydrogen content of the tar being processed and will vary directly with the hydrogen content of the coal from which the tar is derived. The total costs of the refining system are suggested in table V. The regular refinery operation costs listed in table V are taken from various cost figures quoted in the refinery literature during the past several years. Because refining costs vary with location, climatic conditions, and size of the refinery operation, these costs can be considered only as a general average over the United States. Table V, then, can be considered only as indicative of the total costs that will be encountered in estimating a future operation in processing low temperature coal tars.

TABLE V.—*Estimated operational costs for refining low-temperature coal tar*

Type operation	Cost per barrel	Cost per 1,000 barrels
Hydrogen	$0.45	$450
Hydrogen treating	.60	600
Topping synthetic crude	.40	400
Amine extraction	.30	300
Phenol extraction	.30	300
Arene extraction	.30	300
Aromatic fractionation	.30	300
Phenol fractionation	.30	300
Reforming	.12	120
Chemicals	.15	150
Royalties	.30	300
Total	3.42	3,420

No cost price has been placed upon the crude tar used as feed stock but considering the value of the creosote oil which may be distilled from the tar and the fuel value of the residuum, a cost of $3 to $3.50 is considered a fair value for this feed stock. An added inducement for processing is the 2 or 3 gallons of light oil that can be recovered in the carbonizing process and the gaseous materials which are evolved. The light fraction, boiling below 200° C. (392° F.) contains saturated paraffins in great variety, plus a considerable quantity of olefins, diolefins, and arenes. The "acid" fraction contains a small quantity of organic acids and a fairly good quantity of phenol. There is also the ever-present small quantity of amines. The gases contain C_1 to C_4 hydrocarbons, both saturated and olefinic, ammonia water, and hydrogen sulfide. When these byproducts are added to the liquid products obtained from refining the tar, listed in table IV, profits can be considerably enhanced.

In conclusion, it seems entirely feasible that, by applying petroleum processing methods, low temperature coal tar may be processed at a profit. Some modifications are necessary for the application of standard petroleum process equipment for tar processing purposes, but these modifications seem neither great nor expensive. Any existing modern refinery could include this feed stock in their regular refining operations by addition of the small amount of equipment required for hydrogen treatment and the extraction of bases, acids, and arenes. A high efficiency fractionating tower should also be added to complete the purifying program. With the wide margin existing between costs and the value of the products obtained, even a relatively small plant should operate at a profit.

AREAS OF NEEDED RESEARCH

Research is needed on the several types of reactions that occur and their order of chemical preference. There is an entirely new area of investigation into the effects of the many variables under conditions of continuous flow. Further work is also needed in the study of the products of the hydrogen treating reactions. Many of these which occur in larger amounts are known but the study should be extended to the paraffinic hydrocarbons. Only a small amount of work has been done in this laboratory on the gaseous materials, however, investigation of the gaseous fraction has been carried out in other laboratories and a large amount of information is available in this area. Information available to date certainly justifies continued investigation of this promising process, and may even justify pilot plant production to substantiate the laboratory results.

Mr. STEILING. In just brief summation, Mr. Chairman, and in conclusion, I would say:

The men whom the Natural Resource Board and the State of Wyoming have brought as witnesses before your committee today have expressed to you in detail the situation that faces our Wyoming coal industry. Rather than be repetitious, I am, therefore, going to say that without reservation this is a true presentation of the facts as we also see them. They have spoken for the State of Wyoming in this matter.

There were other interested groups in Wyoming who were unable, due to the shortness of time, to attend this hearing to present their viewpoints and recommendations. Therefore, some have asked me to present for them letters that express briefly their thoughts. Since they are essential to our presentation, I ask permission of the committee at this time to read these communications into the record.

The decline in coal operators as described by Mr. John Lucas, Jr. of Rock Springs, Wyo., resulted in the inactivation of the Coal Operators Association in Wyoming, but last year there was formed the Wyoming Mining Association in which Wyoming coal operators are important members and Glenn Sorensen, president of the Kemmerer Coal Co., Frontier, Wyo., is the vice president. Mr. Sorensen is also a member of the Wyoming Natural Resource Board. I would like to read at this time a letter from the Wyoming Mining Association's

full-time executive secretary, Russ Beamer. For many years before coming to Wyoming, Mr. Beamer was associated with the coal industry. [Reading:]

MARCH 8, 1957.

Mr. BOB STEILING,
Secretary, Natural Resource Board,
Cheyenne, Wyo.

DEAR BOB: It is with regret that I am unable to attend the congressional hearing to be held in Pueblo, Colo., on March 11, relative to the depressed condition of the coal industry in the Western States. It will be appreciated if you will convey our viewpoints to this committee.

The decline in coal production in Wyoming is a matter of grave concern to our association. During a period when other industries are growing and expanding, the coal industry continues to lose ground. Recent reports indicate that additional mines will be closed. The result is severe economic dislocations in the immediate communities and very definite effects on the economy of our State.

All of us are interested in constructive efforts to improve the situation. Our recommendations for action are:

1. Consideration should be given to a reduction in freight rates so that coal can be made more competitive. The rise in rates is an important factor in the competitive situation with other fuels.

2. Our Wyoming coal is a resource that can be utilized most efficiently in the production of electric power. Power produced at the mine or pit should be considered as an exportable product for adjoining States in need of additional power.

3. We concur with the viewpoint of the coal industry that an expanded research program in the utilization of coal and coal products should be instituted.

4. We support the viewpoint of the industry in this State that additional financial support should be provided for the work of the Wyoming Natural Resources Research Institute. Dr. Henry Fisk and his staff are familiar with the problems in connection with the utilization of Wyoming coals. Coal research at the institute could be coordinated as a part of a Federal program. We believe that Federal assistance to the institute is amply justified.

Sincerely yours,

WYOMING MINING ASSOCIATION.
R. W. BEAMER,
Executive Secretary.

While I believe that the witnesses appearing for Wyoming have covered the subject well, I would like to add several additional comments at this time, regarding the situation from the standpoint of the Natural Resources Board. Our board is charged by law with the development of Wyoming's natural resources. The declining coal situation has been noted by the board on behalf of the State of Wyoming for a number of years. Even before the closing of several Rock Springs mines in 1953 the board, knowing of the impending closing, conducted, in cooperation with the University of Wyoming, a complete economic study of Sweetwater County. I have brought with me today a number of copies of this special study which contains a number of particular field investigations and surveys connected directly with the economy of this one area with particular reference to the effect of coal mining.

I call to the committee's attention pages 24 and 25 of this study which illustrate the economic impact of the coal industry in this area on a dollars-and-cents basis. As indicated with the closing of mines the area was anticipated to lose about one-fifth of the business income. In checking with Floyd Harmston of the University of Wyoming, who completed this report for the Natural Resources Board, we find that the results have come about comparatively as were indicated. Let me say at this time that the Natural Resources Board im-

mediately embarked upon a positive-assistance approach to this problem with the report. The impact of the coal decline was evident. It was also evident that other factors in the area could supplant a portion of this decline which it also has done. These matters are brought out in this study, but they in no way reduce the importance of the coal. Our board immediately began a research program on Wyoming coals to obtain basic data on the char-and-tar properties so that a beginning point might be had for future utilization not only of the coals of this hard-hit area, but in other areas of the State as well. A cooperative program was instituted with the United States Bureau of Mines, the Natural Resources Board, and a large nationally known private chemical concern, whose name I am not at liberty to divulge. The majority of these tests were only recently completed and the remainder will be completed soon. I am happy to report that there is now some interest in future development of these coals deposits by several private concerns. We are hopeful that some industrial use may come about with the tars of these coals as we are equally hopeful of the utilization of the chars in future power development. We are highly appreciative of what can be accomplished by cooperation between the State and Federal Governments and private enterprise in such research program.

We are also highly cognizant of the lack of available funds for pursuance of additional research along these lines to hasten this future development.

We greatly appreciate the fine work being done by the United States Bureau of Mines on coal research, but we have two basic recommendations to make to this committee in relationship to this coal research. We believe that there is a need for increased research and with increased emphasis on western coals. It is our belief also that if coal-research funds are increased for western coals that a certain segment of these funds could best be utilized by their allocation to such research agencies in the individual States as Wyoming's own University of Wyoming Natural Resources Research Institute. The big problem in research today is finding capable technicians and this agency, for example, possesses such personnel but we are without the necessary proper funds to proceed at maximum efficiency in their coal research. The State of Wyoming believes that increased research funds allocated as grants similar to those now given by the United States Navy and other agencies to research groups such as the Natural Resources Research Institute give a maximum return on the dollar spent and at the same time provide research needed for the particular depressed areas such as exist in Wyoming. We urge this committee to lend their every assistance in furthering such a program as it is one that promises the quickest research results for our specific area.

At this point I would like to comment briefly upon the financial structure of coal research as it applies to Wyoming. From private sources within our State there exists only limited research funds. Wyoming with 312,000 population is not highly industrialized. We possess a complete total of only 12 firms in all the State employing over 100 people. It is obvious that numerically the number of firms who can do research are limited. In addition, our firms are not those with extremely large capitalization. I will say that these Wyoming firms are interested in research and are spending near their maximum economic limit in this regard. It simply represents only a drop in

the bucket in total dollars and cents. The State of Wyoming operates within a constitutional provision that prohibits deficit spending and the total State general fund for the entire State government for the biennium commencing July 1 is only slightly in excess of 33 million dollars. There are only limited State funds therefore available for research. A great amount of this total is borne by mineral production taxes led by crude oil followed by natural gas and with the coal industry third.

Our financial situation is further complicated by the fact that Wyoming is over 51 percent federally owned and there is considerable additional percentage in Federal ownership of mineral rights not conveyed with surface ownership. Last week $4,509,478.85 was returned to Wyoming as its 6 months' share of Government royalty funds from Federal land in Wyoming during the first half of 1957. However, let me say that the State of Wyoming believes that instead of Wyoming receiving this 37½ percent portion, that in actually Wyoming contributed the 62½ percent remainder or something over $7½ million to the Federal Government. Under the statutory formula, Wyoming's 37½ percent was distributed entirely for roads, schools, and the building fund at the University. Only 11 Western States have this condition. The mineral rights are retained by the other States and in addition, tideland oil reserves are controlled by the coastal States adjoining.

If, as under a bill now introduced in the Senate by Wyoming Senator Frank A. Barrett, 90 percent of these funds were returned to the State, a portion of these funds could then be indirectly utilized in such research on the further development of Wyoming's minerals which are truly the tax blood of our State. Mr. Chairman, this would simply be good business. I submit to you and your committee, Mr. Chairman, that the size of the royalty income from Wyoming minerals certainly should be reason for this committee and the entire Congress of the United States to provide assistance in what the State is kept from doing by enlarging the research program for the development of our large, latent and declining resources such as coal. This, too, would seem to be simply good business on the part of Congress.

Before closing, I would like to reemphasize a statement made by Veryl Hoover of the Pacific Power & Light Co. regarding increased acreage allotments in one State. Mr. Chairman, in addition to the Pacific Power & Light Co., we are presently negotiating in the course of our regular industrial operations with a large concern who are willing to go ahead with a development program utilizing the coals of Wyoming. Their establishment has been greatly hampered by this acreage limitation because the size of their operation when translated into the economics of a long term operation is simply not feasible within the confines of the presently allotable 5,000 acres within one State. Fortunately, in this particular instance, we have been able to assist this concern with private and State-owned properties so that the prospect for this development remains good. However, Mr. Chairman, our concern lies in further prospects. If this condition now exists, it will exist in the future when a developmental opportunity arises. We heartily endorse Mr. Hoover's recommendation that the acreage allotments in one State for one firm be increased. There seems no reason where, in a depressed industry such as this, that these regula-

tions be applied. Your committee can be of great service by putting this matter high on your list of priority activities.

This, Mr. Chairman, is the position of Wyoming coal as we see it. Our efforts are strained to the utmost. We are expanding effort and we can see success over a future horizon. We can also see that a barrier does exist that only expanded and concentrated research can break down. We believe strongly there is a future for coal which we have in abundance, but it will require considerable research to bring about this development and we also strongly believe that your committee can do much to bring this about.

I thank you for the consideration of the committee in allowing this testimony and that of the witnesses on behalf of the State. Our services are always at your disposal.

Thank you.

Mr. Chairman, I believe that completes the testimony of the witnesses that the State of Wyoming has here today. I would just like to make a very short summary of our recommendations.

This morning there was some talk from the Colorado representatives relative to defense industries, and the usage of coal. I would just like to point up very briefly that we in Wyoming have practically no defense industries, and, in fact, practically no industries of any kind. We have exactly 12 firms in the State of Wyoming that employ a hundred people or more. An industry such as coal and the decline that has been shown here today has a much greater effect upon our economy than it does upon our sister States, if I may be so bold.

We realize that our own economic situation is directly tied in to the marketing situation. We are a long ways away from a market of any considerable size, and this problem faces us not only on coal, but practically upon any resource or any industry that comes out.

For your information, and for the files of the committee only, I would like to present to the committee staff four publications of the Wyoming Natural Resource Board. These are economic studies, only three of a series in the State of Wyoming. They cover three separate coal producing areas and list in detail the economic structure of the area, and the effect that coal has upon these areas.

Mr. EDMONDSON. Would you identify them by name for the record?

Mr. STEILING. Yes, sir. The first is a study of what we call the Tongue River Basin, which is essentially the Sheridan area that Mr. Nugent testified about.

A second is a study of Sweetwater County area, which is the area covered in Mr. Lucas' testimony, and which, incidentally, was done in 1953 and directed directly at the coal industry, and contains in it a series of data obtained by actual field surveys in this area in relationship to coal and its economy.

The State of Wyoming was very much concerned with what affect the closing of the coal mines in the Rock Springs area would have, not only upon the Rock Springs area, but upon the State as a whole. We determined, very briefly, as a summation of this particular study, that the coal industry in Sweetwater County area represented one-fifth of the total economy. Since that time, and since Mr. Lucas' testimony was prepared, we have had the announcement of the closing of another coal mine in the Rock Springs area. The slight increase that has shown in Mr. Lucas' testimony relative to the number of people employed in this industry, I am afraid next year will be

shown in a resultant decline, and we will have a considerable worse picture than we have today.

Tragically, it is the story of our southern Wyoming mines in particular.

In former times, as Mr. Nugent indicated, it was also the history of coal mining in Wyoming.

We have been unable to present testimony relative to other coal-bearing areas. My own country happens to be in the northeastern area, in the area of the old Cambria mines which were very fine producing mines back many, many years ago. But coal mining is gone and forgotten in that particular area at the present time.

Mr. EDMONDSON. Would you identify the other two?

Mr. STEILING. One is a study of northeastern Wyoming which indicates the complete decline of the coal industry in the area.

For the information of the committee, the final document is a complete summation of the industrial situation in the State of Wyoming, which contains a relationship in the coal industry and other industries in the State.

Mr. EDMONDSON. Without objection, they will be received for the committee file.

(The documents referred to will be found in the file of the committee.)

Mr. STEILING. Mr. Chairman, that completes the presentation for the State of Wyoming. We will be very happy to answer any questions directed at the group. I believe we have a sufficiently rounded group here that we can answer most of your questions.

On behalf of the State of Wyoming, I would like to express our appreciation for the courtesies shown us by the whole city here in Pueblo, and for the courtesies extended to us by this committee in hearing us today.

Thank you.

Mr. EDMONDSON. Mr. Steiling, your panel has made a magnificent contribution to the work of this committee. I want to congratulate all responsible for the splendid organization of material as well as the very effective presentation that has been made. It has been, I think, one of the finest presentations ever made by a State to a congressional committee, and we have certainly appreciated it.

Mr. STEILING. Thank you, sir.

Mr. EDMONDSON. Mr. Metcalf.

Mr. METCALF. I want to add my gratitude to you for the presentation you have made here today. You have presented the situation in Wyoming, which parallels the situation that we confront in Montana—great distances, very few industries. All of the problems that you have in Wyoming, we, too, have. This committee has not had quite that phase of the problem in some of the other areas. So you have done me a particularly great service in not only presenting your problem very well, but intelligently, and helping us argue our own problem in the State of Montana.

Mr. STEILING. Thank you. I would like to say that is very true. While we have presented the case from Wyoming's standpoint, it certainly holds true particularly for Montana, and I believe also carries over into other States of the surrounding area.

Mr. METCALF. It would also carry over into another great area of coal reserves, the State of North Dakota.

Mr. STEILING. Yes.

Mr. METCALF. Which is also confronted with the same problems of lack of industry and ghost towns, high freight rates, and loss of coal markets through dieselization of railroads.

Mr. STEILING. We would like to emphasize very much the fact that coal cannot be taken out of context. You must consider, in considering the economics in a State like Wyoming what the entire overall economic picture is in our State. Our State is based upon a very few basic industries. When one is destroyed, the State suffers a tremendous effect.

Mr. EDMONDSON. I do not recall seeing in these materials submitted the budget for your research program in your State. Do you have that figure?

Mr. STEILING. Sir, the research program is very small. Our department has given a very small amount of money to the research. We had a cooperative research program, as mentioned in the outline there, conducted with the Bureau of Mines and with a large private concern. The total amount of money expended on it is a difficult one to judge because of the fact the private concern was very generous to us in performing their services. Their contribution from us in this particular program from our agency amounted to around $6,000. I think Dr. Fisk could tell you approximately what his research program amounts to in dollars and cents. I assure you, gentlemen, it is not very much.

One concrete example is Dr. Law's very fine laboratory from which he compiled the studies which you have with equipment worth approximately $3,000, which was constructed entirely by hand at a cost, I understand, of about $75.

Mr. EDMONDSON. Dr. Fisk, would you like to tell us what your budget is?

Mr. FISK. I am a little embarrassed to bring that up, but I am glad to give you the information. We have been allotting approximately $20,000 a year for coal research work in our budget, which comes through the university.

In addition to that, we have virtually borrowed Dr. Law from our petroleum work, and if we consider the work he has done on coal, it increases that figure by one man, we will say.

Mr. EDMONDSON. In terms of percentage of your State budget, what would that figure come to, sir?

Mr. STEILING. Twenty thousand dollars against the State budget does not amount to very much. Our general fund budget this time, as I recall, was around $33 million. We have a very complex situation in Wyoming, and that is because of the fact we are a land-grant State, and about 51.4 percent of our State is federally owned. We have so much ingress and outgo of Federal funds, we become slightly confused in just exactly how much money we do have, and how much we do spend. I am afraid even our auditors sometimes are quite confused as to where the money goes and where it is going to come from. It represents a very small portion.

I would like to again emphasize we have very little money available, but what we do have we eke out every single solitary drop of benefit, believe me.

Mr. EDMONDSON. I think we can tell you, as members of this committee, the confusion as to how much money is coming in and how much is going out is not confined to the State of Wyoming.

The gentleman from Pennsylvania.

Mr. SAYLOR. Mr. Steiling, I hope you will convey to Governor Simpson my warm personal regards, because when he talked to me about this committee last fall, and told me what the State of Wyoming had done, I could hardly believe that a State with as small a budget as I know he has would have done anything in the way of coal research.

I know if some of the other States of the Union would have taken as much interest in coal as Governor Simpson has, we might not find ourselves in as bad as a shape as we are.

I would like to commend the entire State and your panel here today for the fine presentation that you have made.

I have a few questions that I would like to ask Dr. Fisk.

Did I understand you to say that you have all types of coal in the State of Wyoming?

Mr. FISK. I made that statement. I should like to make a correction. We do not have anthracite.

Mr. SAYLOR. That is the reason I asked the question. I did not know you had.

Mr. FISK. I was feeling that mentally, but did not say it. I am sorry.

Mr. SAYLOR. That is perfectly all right. Just so we do not ask the Bureau of Mines for a report on where in your State the anthracite field is.

Mr. Fearn, the next question I have has to do with you.

You stated that many of the young men that are in your State are not going into the mining field, and that you do not have any new blood coming in. I would like to call to your attention a statement that was included in the report of Mr. Tom Allen, the chief inspector of coal mines of the State of Colorado, his report of 1955, in which he makes this statement:

> Examinations conducted by the coal mine officials in 1955 were not attended by a sufficient number to supply the increased demand for officials.

Have you had the same experience in your State?

Mr. FEARN. That is true; yes. We have plenty of officials, but it is because of the mines closing down. But for new men, they are not going out for what we call morning examiner's papers. They are not going out for it. We just had 6 men at our last examination, and when our mines were running well, we had 35 or 40.

Mr. SAYLOR. Do you also have in your State law a provision that a certificate which is not used for 5 years is null and void?

Mr. FEARN. No; we do not have. There is no void unless it is for cause.

Mr. SAYLOR. Then I would like to congratulate these two men, Mr. Lucas and Mr. Nugent, for their reports as operators. I think it is very complete.

Mr. Nugent, am I correct in my understanding that you only have one mine left in your area?

Mr. NUGENT. We have only one rail shipping mine in the area.

Mr. SAYLOR. Mr. Lucas, how many do you have left in your area?

Mr. LUCAS. In our area we have 1 commercial mine left, and we will have 1 captive railroad mine.

Mr. SAYLOR. Mr. Hoover, so that we can get the record straight: The company which you represent, Pacific Power & Light Co.. is

that a subsidiary or connected in any way with the Pacific Gas & Electric Co.?

Mr. HOOVER. No, sir; it is not.

Mr. SAYLOR. And you do business only in the State of Wyoming?

Mr. HOOVER. We do business in the State of Wyoming, Montana, Oregon, Washington, and Idaho.

Mr. SAYLOR. You have stated that one of the real problems you feel is confronting your company is the limitation of 5,120 acres which your company may get from the public domain for coal lands. What method would you suggest to this committee or the Bureau of Mines that they might use in blocking out areas for companies to determine the quantities of coal? Also, what recommendation would you make to our committee or the Bureau of Mines as to the maximum limitation that one company should be allowed to have?

Mr. HOOVER. Well, sir, we have only encountered this problem just recently, and before we made any recommendations we certainly want to talk to the State officials, as well as our congressional delegation, and study the problem further, and come up with a recommendation that would be agreeable and compatible with everyone's thinking.

Mr. STEILING. I would like to say Mr. Hoover's particular problem here is the second one that has arisen with us in the last week or 10 days.

There was another firm who in this particular case happened to be an oil company, who was interested in the results of Dr. Law's work, and are presently considering an establishment. In attempting to go find a location of our own, they ran across the same provisions and with the same results that Mr. Hoover's company found. The result is that they have gone to a private company to get additional lands.

Mr. SAYLOR. I have known of this limitation, and the House Committee on Interior and Insular Affairs has held hearings which resulted in the increased allocation for oil.

Mr. STEILING. That is correct.

Mr. SAYLOR. I am just interested in knowing what recommendations might come. I know not only this committee, but the full committee will be very much interested in any recommendations that you may have to present to our full committee.

Mr. STEILING. I might call attention to the chairman that in our request in the final statement, I made the request we be allowed to submit such recommendations at a later time. Due to insufficient time to prepare the recommendations and clear them through our proper channels, we were unable to present them today, and we would like to make that preparation and submit our recommendations to the committee at that time.

Mr. EDMONDSON. We will be very glad to receive them.

Mr. STEILING. Thank you.

(The following letter was subsequently received:)

WYOMING NATURAL RESOURCE BOARD,
Cheyenne, Wyo., May 9, 1957.

Chairman ED EDMONSON,
Special Subcommittee on Coal, House Interior Committee,
Washington, D. C.

DEAR CHAIRMAN EDMONSON: As per the permission of your committee, I am enclosing the final recommendations of the State of Wyoming in regards to assistance to the declining coal industry as brought out at the appearance of our group at the hearing in Pueblo, Colo., March 11.

In the interests of making recommendations only on items that we believe will provide the most immediate assistance to our coal industry, we are limiting our recommendations to two categories which we consider the most important.

First, we are attaching an additional summation on the proposal made at Pueblo relative to the increased acreage allotment for coal and hereby recommend to this committee that the coal acreage be increased to 20,480 from the present 5,120 acre limitation. The entire Wyoming congressional delegation have since endorsed this increased acreage, and Congressman Thomson has introduced the necessary legislation. The western governors have also endorsed this as per the enclosed resolutions. In addition, there is a growing sentiment to such legislation, and endorsements are still forthcoming from industry groups and other interested associations. I learned only today that the National Coal Association, through their executive committee have given their endorsement to this legislation. We hope your committee will do every thing in your power to recommend and to support this needed legislation.

Our second recommendation is that we believe that additional research on a national scale can be best accomplished by a program suported by Congress, through existing research facilities in our various State universities and colleges. Trained technicians are limited, and while the Bureau of Mines does a very commendable job, they are likewise limited by the number of trained personnel. On the other hand, State universities, including Wyoming, possess trained technicians but are limited by availability of funds. Increased funds could be of limited value to the Bureau of Mines by their own admission since their program cannot be greatly expanded. We do urge such expansion to the fullest possible extent and also urge support to the fullest expansion of existing State programs to give the utmost value and manpower utilization from this source in full realization that the coal industry certainly needs every effort that can be secured. We believe some legislation may be needed possibly to secure the desired result in this instance.

We urge your committee to take prompt and concerted action on these recommendations as in the best interest of Wyoming and the Rocky Mountain area and for the benefit of all the coal industry.

Very sincerely yours,

BOB STEILING, *Board Secretary.*

Mr. SAYLOR. Mr. Carroll, did I understand you to say at one time there were 4,500 miners in your area?

Mr. CARROLL. No, sir. What I said was that, at one time in the immediate area in the coalfields out there, there were approximately 4,500 people, around 1,250 miners.

Mr. SAYLOR. That is all, Mr. Chairman. Thank you.

Mr. EDMONDSON. Mr. Dawson.

Mr. DAWSON. Mr. Chairman, I am very much interested in this proposal to increase the leasing acreage. I recall in 1947 we had this problem up, and I introduced a bill to raise the total coal acreage at that time, and we had quite some difficulty over it, but we finally succeeded in getting the acreage increased. I do not recall at this time what it was before, but it was the same bill which increased the phosphate acreage. It runs through my memory it was just about half.

Mr. SAYLOR. Yes; 3,100.

Mr. DAWSON. Thirty-one hundred acres at that time, and then they raise it up to 5,120.

I for one feel there is every reason to perhaps increase it some more, but we have to be a little cautious in getting it too large because there could be a tendency of some groups blocking off huge acreages and not developing it. As long as we can be assured there is going to be some development, then there could be more encouragement for increasing it. Would you care to comment on that?

Mr. HOOVER. Yes. Here is the situation we are confronted with: We have drilled and prospected on approximately 3,800 acres down in Converse County; and we have located a steam plant down there, with the result that we have only about 1,200 acres left to file prospecting permits on, and to drill and prospect.

Now the trick over in this country is to get the coal and the water together, and in order to do that it requires a considerable amount of drilling over large areas of land.

Now if we would go in and take a prospecting permit on 1,200 acres and drill it and find that we were not drilling in the right place, and we had to move over onto another location, I am sure we would be confronted with the prospect of having speculators file all around us. We had that down at Glen Rock. That means that it makes it impossible for you to continue your drilling program like you would like to do in an orderly fashion. Very possibly it would eliminate you from discovering the proper place to set your plant.

Mr. DAWSON. What would you recommend it be increased to?

Mr. HOOVER. I hesitate in saying before I have discussed it with the other people in the State. I think it should be increased, particularly the prospecting permit area. I think, as Mr. Steiling has said, we can in a few weeks come up with a fairly reasonable reply to your question.

Mr. SAYLOR. Will the gentleman yield?

Mr. DAWSON. Yes.

Mr. SAYLOR. Would you consider in arriving at your conclusion, Mr. Hoover, a limitation of time as far as the development of your area is concerned?

Mr. HOOVER. Very definitely; I think that should be considered.

Mr. SAYLOR. One of the reasons I bring that up is, in the hearings we have held heretofore to increase the acreage allotment even for oil, there was testimony by some people that extending that, as we did, without a time limitation would allow oil companies to go in and tie up huge acreages of land for an indeterminate period, that they felt there should be a time limitation on the oil leases for development. I am glad to hear you feel there should be a time limitation on coal development.

Mr. HOOVER. I am sure that would eliminate the speculators.

Mr. STEILING. I might say, Mr. Saylor, as I recall, this matter came up last year, particularly in Mr. Dawson's area, relative to phosphate, and I believe we are interested in the same type of situation with the phosphate deposits, providing the same limitation occur.

Mr. EDMONDSON. Off the record.

(Discussion off the record.)

Mr. EDMONDSON. Judge Chenoweth.

Mr. CHENOWETH. I just have one question. Do I understand the Union Pacific has gone completely to dieselization now?

Mr. LUCAS. Practically. They are still operating one mine, and how long it will continue to operate is a very moot question. Nor do we know how much coal they will continue to use.

Mr. CHENOWETH. You are not connected with the railroad yourself?

Mr. LUCAS. No, I am not.

Mr. CHENOWETH. I think that is all.

Mr. EDMONDSON. Thank you very much.

Mr. STEILING. Thank you, Mr. Chairman.

Mr. CHENOWETH. The next group will be witnesses representing Walsenburg, Huerfano County, immediately to the south of Pueblo, which I think has been hit perhaps as hard by the decline in the coal-mining industry as any other area in the States we have been hearing from today.

Mayor Haney, we are glad to hear from you and Mr. Fisk. Go right ahead.

STATEMENT OF D. D. HANEY, MAYOR OF WALSENBURG, COLO.

Mr. HANEY. Thank you, sir.

Honorable chairman and members of the honorable committee, I am not speaking for the chamber of commerce; I am not speaking as an expert on research; I am not speaking as a coal-mine operator; I am not speaking as a large corporation representative; I am not speaking as a representative of the United Mine Workers, nor of the Government; I am just a simple smalltown mayor talking about something that concerns me greatly which, put in my very plain English, is that Walsenburg is damn sick, just like the Honorable Mr. Dawson said the coal-mining industry is sick. Well, we are sick, too.

Being the mayor, I have the—I cannot say "privilege"—the very sorry job of knowing what is going on.

In a community the size of our county, you have an industry in 3 years, which would be 1943, 1944, and 1945, which produced over a million tons of coal each year, and then we dropped down to a total of 64,000 tons a year, which would be the exact figures—I will not give them to you—but the retail sales department of the Colorado Fuel & Iron Corp. sold more coal in 1956 than we produced. So I do not think I have to imply again that we are sick, because we are.

The city of Walsenburg, located in Huerfano County in the State of Colorado, has for many years been a thriving community. The economy of the community has been based principally upon the coal produced in the county and the tourist trade which has been passing through the beautiful State of Colorado.

Walsenburg is located about 50 miles south of Pueblo and about 25 miles from La Veta Pass which crosses the Rocky Mountains. Pueblo is primarily an industrial community with the Colorado Fuel & Iron Corp.—one of the West's largest steel mills—the Pueblo Ordnance Depot, and Triplex Piston Factory. These industries stabilize the economy there. The area around Walsenburg is considered to be among the most beautiful and pleasant in the Nation. Skiing, hunting, fishing, and mild climate are some of our outstanding attributes.

In the past 10 years Huerfano County has been suffering from a serious economic decline while others areas of our State and Nation have enjoyed a period of inflation.

In 1946 there were 12 mines operating in the county, employing 533 people. In 1956 there were 6 mines operating in the county, employing 64 people. This would indicate that approximately seven-eighths of the miners in 1946 are no longer employed in this county.

In 1946 there were 5,858 people living in Walsenburg. In 1956 there were 5,596 people living in Walsenburg.

In 1946 there were 12,500 people in Huerfano County as compared with 10,508 people in the county in 1956. This is a drop of almost

2,000 people in the past 10 years, or approximately one-sixth of the county population. These figures in themselves are not too alarming but further statistics indicate that this may be a mere beginning of our problem. Today we have an available employment pool of approximately 3,600 people counting everyone who works in any capacity. Of the above-mentioned number there are 240 workers who have their homes in the community and who commute to places of employment at least 40 miles away. This may better be seen by the breakdown as follows: People who reside in Walsenburg:

Working at Pueblo Ordnance Depot	50
Working at Allen Mine in Trinidad	75
Working at Colorado Fuel & Iron, Pueblo	75
Others	40

These people have maintained homes in this area in the past. Needless to say, unless suitable employment is available in the immediate area they will be forced to move their residences closer to the location of their employment. If these people were to move away, and assuming that each one employed has 4 dependents, this will mean a further loss of almost 1,000 people from the county.

There are at the present time 200 people on the unemployed list in the county. This is a rather unrealistic figure when you consider that those who become unemployed do not register for employment here because they realize that chances of becoming permanently employed locally are not good and they therefore are seeking employment elsewhere and not bothering to indicate unemployment with the local office.

The relief and welfare situation in the county has reached alarming proportions. In 1946 the county aid given to needy people was $82,547.23, as compared with $308,275.81 expended in 1956. This is an indication that almost 4 times as much was spent for relief in 1956 as compared to 10 years ago. In 1946 there were 420 people who applied for unemployment benefits. In 1956 there were 832, or approximately twice as many as that of 10 years ago.

In the schools the population has dropped from 1,810 to 1,615 in the past 10 years. At the same time most of the school systems in the Nation have been faced with rising school population and overcrowded schools. In the city of Walsenburg in the last 25 years, we built 1 school, and in the last 10 years we closed 1 school. Our graduates very, very seldom remain in the community once their education is complete.

Another thing I would like to point out to you is our financial picture. By that, I mean the number of dollars and cents in our banks in savings accounts, the number of dollars and cents that have been deposited in the bank.

In 1946 we had $1,469,477 in savings accounts in our bank in Walsenburg. Today we have $958,259, which is a drop of approximately a half million dollars.

Postal savings were $465,610 in 1946 and today are $236,582, or a drop of $229,028, or a total drop in savings in 10 years of $750,000.

The same story goes for the bank deposits. In 1946, we had $3,319,935 in our banks, and today we have $2,613,711. Again a drop of $750,000.

The need to stabilize the economy of the county is clearly indicated by these figures.

JUVENILE DELINQUENCY

In 1946 we had 29 cases in court, and in 1956—and so help me we did not get them all; we are still trying—we had 60 cases, just twice as many in 10 years.

If you people think the industry is sick, we are sicker, believe me. As I go on, I will make you sick.

G. I. BENEFITS

When I speak of G. I. benefits, I mean a man who got out of the Army in 1946 could go to a bank and get a G. I. loan and start one hell of a business. In the past 10 years we have had one person who received a loan to start a business in Huerfano County through G. I. benefits.

Incidentally, gentlemen, these figures I am giving are authentic figures, and I can back up every one of them. I got them right from the source.

Huerfano County in the last World War, along with Las Animas County, sent more men to the Armed Forces during World War II, a higher percentage of its population, and a higher percentage of casualties incurred than any other county in the State of Colorado.

O. K., so much for the G. I. benefits.

In many areas of our Nation a homeowner in 1946 would now find that the value of his property is far greater today than it was 10 years ago. The general trend as a nation has shown a tremendous growth in the past 10 years in the construction of new homes. In Walsenburg there have been 11 houses built in the past 10 years and value of real estate is no greater now than it was in 1946. This is a serious problem for any community with a population of more than 5,000 people, for it stands as an indication that unless remedial measures are taken the city may never again enjoy the status of a thriving community.

One more little thing before I turn this over to Mr. Fisk. I will probably get the devil kicked out of me by the rest of my group for saying it, but I am mostly Irish, so my Irish is up.

We are speaking of powerplants for the manufacture of electricity. One gentleman made the remark there was no powerplant of consequence in southern Colorado. I want to differ with the gentleman in that in Walsenburg the citizens of our community found that the utility who served us was about to quit. They were going to sell our plant and there was a possible chance it could become a part of the Southern Colorado Power Co., which is headquartered here in Pueblo. There was a possible chance that this powerplant of ours would be closed down if purchased by Southern Colorado Power or any other power company in this area. Consequently, we would lose the number of men working in the powerplant, we would lose the amount of coal produced to operate this powerplant. So the citizens of Walsenburg—and I want to repeat—the citizens of Walsenburg, and no other people, had an election and voted to purchase this powerplant. That we did. And there being no powerplant of consequence in southern Colorado, we are spending almost $2 million to rehabilitate our powerplant. Believe me, gentlemen, with the exception of Pueblo, we are second to no one on the south, the east, or the west. Our plant will be twice

the size of Trinidad, we will be twice the size, as I said, on the east and on the west.

We use coal to produce our power. As a standby, gentlemen, we use more coal. That is all we have got down there—coal. We burn coal.

I got a terrific bang out of the Honorable Saylor wanting to know—"What do you burn?" "Gas."

"What do you burn?"

"Oil."

"What do you burn?"

"Gas."

We do not burn anything but coal, and when we get through all we have got is ashes, and we go get some more coal and burn some more coal.

We are a community that is based on the production of coal, and if you think, Honorable Dawson, the coal-mining industry is sick, so is Walsenburg.

But we have faith in our community, as shown by buying a powerplant and spending $2 million to burn coal in it, so we can burn annually approximately 30,000 tons of coal from our own coal mines in our own powerplant by our own people.

Thank you, gentlemen.

The next man I would like to have talk from Walsenburg is a mining engineer. He has been a mining engineer longer than I am old, and I know well he knows what he is talking about, too, because he is also my city engineer.

Mr. Fisk.

Mr. EDMONDSON. Mr. Fisk, we are very happy to have you, sir. Go right ahead.

STATEMENT OF J. H. P. FISK, CHAMBER OF COMMERCE, WALSENBURG, COLO.

Mr. FISK. Mr. Edmondson, and gentlemen of your delegation, we have learned this morning something which most of us already knew: That the coal industry, as a general proposition, is badly in need of help. So since that has been definitely and conclusively demonstrated by the testimony which has been here submitted today, there is no use in devoting any time to that phase of it.

The question that arises in my mind, and which I think has arisen in yours, and probably in the minds of other men here who are interested in coal is: What are we going to do about it? Is there anything that we can do to correct this situation?

Now, a number of suggestions were made here this morning which are pertinent, valuable, sensible, and should be put into effect. There is no use in my reviewing those you have.

It is within the power of the United States Government to do certain things, to stimulate this coal industry, and before I read this little statement here which I prepared yesterday, and which will take about 7 minutes to read, I want to make this little observation.

Perhaps I am encroaching upon your prerogatives to say this, but I am going to say it: All of the testimony that has been submitted here today, to me, is a red light held up in the pathway of the Government of the United States as a warning that we are going down a trail which leads perhaps to disaster.

Why do I say this? Simply this: In every emergency that this country has faced since I was able to know anything about it, they have turned to hard fuels to pull them out of the emergency they were in. But if we go down the line which we are traveling today, and that emergency arises, gentlemen, there will be no coal.

Now most of us, I venture to say and most of you, have been in the Army, and it was a popular idea in the Army that an order constituted the achievement of a result. That you know to be false. So that when the time comes and we need this coal, and the boys say, "You produce so many tons of coal," the answer will be, "It is too late. We cannot get it for you in time."

Now I hope the Congress of the United States will recognize that and take such steps as are necessary to prevent us from going into such a situation.

Now, with your kind indulgence, let me read what I wrote yesterday, and it will just take 7 minutes to do it, I think.

When an individual is sick he goes to a clinic but the physicians don't prescribe remedies for all known diseases. They study the patient and prescribe the best known remedy for the disease which the symptoms indicate is present.

It is assumed that this body is in the nature of a clinic to which the symptoms may be submitted and, in addition, this patient—meaning this little town of Walsenburg, this little Huerfano County—submits a suggestion for at least a partial remedy.

It is our understanding that we have come here to consider the production and marketing of coal. We have mineable and merchantable coal in Huerfano County. It is a very high grade, noncoking bituminous coal but our market has dwindled almost to the vanishing point. Accordingly, we have trimmed our production to fit this small market but any increase in the demand for our coal will be immediately reflected by an improvement in our economy. It is possible to increase our production to a very considerable extent without material increase in plant investment, at any time that the market demand increases.

Let's qualify that simply by saying we have a number of small mines down there; that most of those mines are working on a small production, not because the coal is not there and developed, but because the market is not there to receive it. So long as that condition exists all you coal men will agree, if it increases all you have got to do is put on a few more men. Now we are not depending solely upon men, we are depending upon machines to get this coal out. So within a reasonable amount, we may increase our production in proportion to the increment in demand. But that, it is assumed, would come in a gradual condition. You cannot cure a disease all at once. You must start at some point and cure the disease beginning at that point. And then spread through the entire body so that the disease finally is cured, during which time these preparations for the curing period may be accomplished.

With the decline of the coal business which for many years was the principal industry of Huerfano County, the city of Walsenburg—I am just going to read this to you for what it is worth—did not fold its hands and meekly accept its approach to a ghose town status. Neither did the town of LaVeta, which is in Huerfano County or

the county as a unit, but altogether the cattle industry and its market facilities have been greatly improved, more and better highways have been secured, areas for mountain homes have been developed, accommodations for tourists have been materially increased and excellent lake trout fishing within 2 miles of Walsenburg has been purchased and developed by that city. Finally, during the last 4 years the city of Walsenburg has issue $1,786,000 in revenue bonds for the purchase and enlargement of the coal powerplant located at the west boundary of the city.

This plant has a present firm capacity of 5,000 kilowatts and with completion of the enlargement, which should be completed about October of this year, 1957, the firm capacity of the plant will be 11,000 kilowatts. A market for this added capacity has already been partially established and is being currently partially supplied.

Since the purchase of this power facility the increase in demand for power has exceeded the anticipated increase.

I think you will see the connection here in just a minute.

These things the people of Huerfano County have done to help themselves but when compared to the loss in its economy occasioned by a 94 percent reduction in what was once its principal industry, it is not difficult to imagine the impact on its overall economy.

Depressions begin at certain spots, never all over at the same time, and if not checked may spread throughout the entire Nation. It is hoped, therefore, that from today's presentation of the overall economic picture of Huerfano County to you, may result in some economic assistance from the Federal Government to Huerfano County, Colo. With that hope in mind, the following suggestion is submitted.

In order to inject direct economic aid into the economy of Huerfano County, Colo., and to conduct further research in the realm of low-temperature carbonization of coal with attendant benefit to the coal industry as a whole: Construct a plant for the treatment of coal by that method, on a site immediately adjacent to the present powerplant of the city of Walsenburg, so constructed that the carbon product of such plant would be discharged directly into the fuel storage unit of the powerplant, the site for such coal treatment plant to be made available to the Federal Government by terms satisfactory to it by the city of Walsenburg. The operation of the plant to be carried out by the said city under terms agreeable to both parties.

The immediate capacity of the plant—when I say "plant" I mean the plant I am talking to you about building—but designed for subsequent enlargement, to be 140 tons of coal per 24-hour period, which would yield about 120 tons of carbon char and 2,360 gallons of crude oil.

Those figures which I have given you are based on the result handed to me by Mr. V. F. Parry of the United States Coal Bureau in Denver.

Any factory having an assured market for its products at a price in excess of overall costs, including capital retirement at reasonable interest rate, would represent a financial venture meriting careful study. It is believed the suggested construction represents such an opportunity.

I would just add this one thing: In 1953, at a considerable expense and investment of much time, a careful study was made in my office by my organization of a low temperature carbonization plant esti-

mated to be about 760 tons a day. But the difference between that plant and the little plant I am talking about now was this: We had no market for the char. We have not yet, so far as I know, determined an absolute market for the crude oil, but we believe it exists.

In this suggestion the market is assured for the carbon char or 87 percent of the output, so far as it is reasonably possible to predict. The market for the crude oil has been roughly estimated by the USGS at about 10 cents per gallon but no purchaser has either been sought or found. Therefore, for the bulk of the product of this plant there would be no sales cost, no transportation costs from factory to consumer, no cost of transportation of raw material from mine to factory, since this item is covered by fuel costs as now required, no cost of management since this unit would be one of the several for which management is already provided and, finally, there would be no tax charge, since this unit would be a part of the present municipal plant. If, by such a venture as here proposed, the physical and economic feasibility of such a plant were demonstrated, it is believed other similar plants would be developed, ultimately resulting in a decided uptrend in the production of coal from this and other areas which produce coal susceptible to this process.

I might say for your information—probably you know it already—the Parry process, which has been demonstrated at the Federal center in Denver will take coal which has less than 15,000 B. t. u. per pound, because when you are not above that figure, you are not in the coking-coal variety. The Parry process will not treat coking coal.

Should such an increment in coal production result, there are a number of mines in Huerfano County which could be reopened and put into production at reasonable cost.

I have had the pleasure of developing for my concern, and for the people who put up the money, some of the largest mines in southern Colorado.

The 1929 fiasco closed two of those mines, and, of course, added to the declining market, and economic conditions simply hastened the untimely end. But being intimately familiar with, and having participated in, the development and management of those mines, I know what I am talking about when I say they can be reopened. I have spent nearly 40 years underground.

Perhaps there is a question in the minds of your delegation as to the availability of coal for such a plant or for such purposes as are here envisioned. The answer to such a question is simple.

Spencer and Erwin, United States Geological Survey, 1947, 1,270 million tons of coal in Huerfano County, Colo.

Thomas A. Allen, State inspector of mines for Colorado, quoting United States Geological Survey calculations of the amount of coal in the La Veta area, of Huerfano County, 100 million tons of coal.

Douglass, Corey, & Fisk, engineers, engaged in coal-mine engineering for the past 40 years, from their records showing partially developed coal in the Walsenburg area, 20 million tons.

Then you may refer to the United States Geological Survey and the statement of Mr. Thomas Allen for the vast reserves which have never been touched at all.

So much for that phase.

Walsenburg coal was tested by Mr. V. F. Parry, Chief of the Bureau of Mines, Denver Coal Branch Laboratory, in 1952, and was

found to be highly susceptible to the Parry process for low temperature carbonization of coal.

The cost of the Parry process has been roughly estimated at $2,000 per ton of coal daily capacity or a cost of the suggested plant of $280,000. While this is a very small amount of cash when compared to the vast sums being spent by our Government for national defense and other unavoidable undertakings throughout the civilized world, it is believed that due consideration should be given to the fact that the development of crude oil with its vast potential for other things vital to the life of this Nation from coal should not be left unexplored. Finally, however, if the experiment should prove the process wholly impractical, it would nevertheless directly and indirectly stimulate the business economy of Huerfano County and would therefore be wholly justified, since it might, gentlemen, prevent the spread of these infectious diseases known as depressions.

We thank you for the opportunity of coming up here, and we are delighted with the interest which you gentlemen are taking, and the grueling program which you are undertaking to carry this thing out; and we do thank you.

Mr. EDMONDSON. Mr. Fisk and Mayor Haney, I want to thank both of you for a very fine statement. I think you are also to be congratulated for your community enterprise in trying to work out a method of using your coal, and developing your industry in that area.

Just a minute. There may be some questions for you.

Mr. METCALF. No questions.

Mr. SAYLOR. Mayor Haney, I want to commend you for the forthright statement that you have made. I appreciate when a man who is the mayor of a community, that is dependent upon coal as its principal source of employment, had the courage to come up and make the kind of a statement you did.

Mr. HANEY. Thank you, sir.

Mr. SAYLOR. I know that sometimes I have had the feeling maybe I was looking at this coal business from an angle that was not being appreciated, because my home community, like yours, is still dependent primarily upon coal. When I come out here halfway across the country and find the mayor of Walsenburg has the same situation, I want to congratulate you on having the courage to come up here and give us the kind of statement you did, and I commend you for it.

Mr. Fisk, I just want to make this observation to you: That the chairman and myself were not in the Army. The chairman and myself were both in the Navy. But your observation is correct, and the Navy has the same attitude that sometimes they give an order, and as soon as they give the order they think it will be done.

Let me ask you this: Have you estimated what a plant such as you have outlined in your testimony would cost to be built adjacent to your powerplant?

Mr. FISK. About $280,000.

Mr. SAYLOR. Would it increase materially the amount of coal which you are using now?

Mr. FISK. No, Mr. Saylor, it would not. It would merely serve as a demonstration of the value of the low-temperature carbonization of coal. Let me say 85 percent practically of the bulk of the coal would be developed into char. That leaves about 15 percent which would show up in the form of tar or crude oil.

Now that tar and crude oil have marvelous possibilities, as we have all seen, and if we did not know it before, we know it now from the testimony we have heard today.

It seems to me that when we are faced with a situation such as has arisen in the Middle East over there along the Suez Canal, and which is not by any means settled yet, that we should be giving some consideration to the fact that we have a source of all the things that we need—the fuels to develop our energy to drive our planes, and a source of practically all or a vast number of the chemicals and rare items that are needed to go into perhaps our defense program.

But more than that, if this thing were demonstrated—much has been said and we have all heard about low-temperature carbonization. I think there is a plant—I want to go down and see it—I believe there is a plant in Texas actually operating. But I have been in the plant at Denver, and I have talked to Mr. Parry, and I am confident from that contact he knows what he is talking about, because he has already run a sample of our coal, and I have seen the char, and I have seen the oil.

His plant sounds to me, as an engineering viewpoint, as being a practical proposition, but I have not seen a working demonstration of it.

Now we were over—I am not criticizing anybody at all—we have been over at Rifle. I am a product of the western slope. We have developed over there a plant for the development of oil from oil shale. That is fine. We have an unlimited amount of oil shale. But there are not an unlimited number of people today that are engaged in the production of oil shale. There are, however, a vast number of people engaged in the production of coal. They are raised that way and depend on that as a livelihood.

But more than that is the fact that we need this research to fall back on in time of need. I feel that this experiment, once carried out, would very shortly be adopted by others if they could come and see just one working plant. That is the thing I have in mind.

Why wouldn't others do it if we could take—what did I say—2,360 gallons per 24-hour period of this product, and we can convert that into the thing that we need.

Of course, captive mines and the people that operate them are not suffering as are mines that are engaged in commercial competitive operations. But this product, this possible use of coal I am confident would expand with time to very large proportions. That is the reason I submit it.

We will burn the same amount of coal, but we will take out the residue in ashes. And we have got a good ash disposition system too. We would take out some crude oil and put carbon in. See what I mean?

Mr. SAYLOR. I certainly do. What you want to do is have a real working plant.

Mr. FISK. A working demonstration of it.

Mr. SAYLOR. Of the Parry process?

Mr. FISK. That is it. It is difficult to get private capital to come out and say, "Yes; I am going to back Mr. Parry. Who is Mr. Parry?" They do not know. You have got to go and see him to find out who he is. And you cannot get private capital to do it. I would not put

up my own capital, what little I have got. But I do feel that this part of the country, gentlemen, is entitled to a little help from Uncle Sam. We pay taxes just like the rest of them. We just have not been blessed with the Midas touch, and I think we are entitled to it.

Mr. SAYLOR. Mr. Fisk, you renew my faith in the American people. I am delighted to have heard you talk.

(Discussion off the record.)

Mr. EDMONSON. Mr. Dawson, do you have any questions?

Mr. DAWSON. I do not understand. You say you are not blessed with the Midas touch. I believe you have a pretty good touch. I believe you touched us about as effectively as anyone could.

I want to comment to your colleague, that he did not sound like the mayor of Los Angeles by any means in the report you were giving on your city. But it does take some courage, and I want to commend you, because it is the same situation that we have found not only in this area, but in Pennsylvania, and other places we have been—the mistaken notion a lot of people have that when an industry gets sick they will say, "Well, it will be absorbed by some other industry. Something else will come to take its place."

When you go into communities like yours I think you find a typical example of people who have been working in these mines, who are a type of people that do not like to move into another industry. They are not used to it. They have come, so many of them, from foreign countries, and are reaching the age of life where they cannot be uprooted. I think we owe it to the country to let them know it just is not possible to close up these cities and towns and lock them up and say, "Go off, lock, stock, and barrel into Denver or somewhere else and reestablish yourselves."

As you say, the people like to live in Walsenburg, they have grown up there, and that is their life. I think we owe an obligation to do what we can to see these communities are rehabilitated.

Mr. HANEY. Thank you, Congressman Dawson.

I might say, as mayor, I have got to holler. I am not old enough to get on old-age pension, and there are so many on relief there is no room for me. And I have got three kids that like to eat, and you can see that I like to eat too. I have got to make a living.

If we can do something by coming before such a committee as you men are, fine; I will come every day.

I might add this, too, with due respect to Mr. Fisk and Mr. Allen: If it is entertainment you want, we from Colorado can certainly give it to you.

Mr. DAWSON. You have done it.

Mr. HANEY. Thank you, sir.

Mr. EDMONDSON. Judge Chenoweth.

Mr. CHENOWETH. I am not going to take the time to question you. What you have told us today is not new to me. I wanted my colleagues on the committee to hear about it. I have been telling them about your situation, but they may have been a little skeptical as to what the conditions were. I wanted them to hear it firsthand.

I have one other question. You did not refer to Cotarco. Do you want to go into that, or pass it by? I hesitated to mention the matter, but would he happen to have your observations?

Mr. HANEY. May I answer it this way, if you please, Judge: For instance, when you are in church you never use bad words. I do not think this is the place to use bad words.

Thank you.

Mr. CHENOWETH. We will pass the matter.

Thank you.

Jimmy, you have intrigued me with your proposal for the experimental plant in Walsenburg, and I would like to talk to somebody about it. We will follow up on your suggestion and see what can be done.

I enjoyed seeing both of you very much. You have been very helpful.

Mr. HANEY. Thank you very much, gentlemen.

Mr. FISK. Thank you, gentlemen.

Mr. EDMONDSON. Call the next witness, Judge.

Mr. CHENOWETH. Our time is running short. We do not want to impose any limitation on time. We have a number who have been waiting all day, and we are going to hear from everyone. We do not want anyone to feel they are not going to be reached.

Mr. Davidson, manager of the Canon City Chamber of Commerce.

STATEMENT OF DOYLE L. DAVIDSON, MANAGER, CANON CITY CHAMBER OF COMMERCE, CANON CITY, COLO.

Mr. DAVIDSON. Mr. Chairman and honorable Members of Congress, I am Doyle L. Davidson, manager of the Canon City Chamber of Commerce. I am here today to present to you a few facts and figures regarding what has happened to the coal industry in Canon City. You have heard about it on a statewide level, and I would like to bring it a little closer to home, down to the community level, to give you an idea of what has happened to some of our communities here in Colorado.

The Canon City Chamber of Commerce, the city of Canon City, and the people of Fremont County as a whole are very much interested in seeing what can be done to utilize the tremendous coal deposits in that area.

Much of the history of this area had its beginning in the coal-mining activities that flourished in years past. Cannon City was once known as a great coal-mining center, but over the past decade these activities have been reduced due to one cause or another. During the period 1923–27 there were 1,400 miners actively employed in the mining of coal in the Canon City area. This represented nearly 40 mines. Today that figure has dropped to a low of just under 100 miners operating 7 mines.

If you will refer to the last sheet on this report, you will also see where the production of coal has dropped from 1945 to 1955. In 1945 that production for Fremont County was 557,356 tons. In 1955 that has dropped to 217,406 tons. In other words, we dropped approximately 6 percent in coal production and roughly 90 percent in the number of people employed in the mining industry.

Where large mines once stood that employed as high as 400 miners per mine there is now a desolate area with deteriorating buildings which no longer houses the machinery used in these operations. Such

machinery has long since been moved to other locations or else sold for scrap. A few scattered buildings, occupied by miners who are still working for small operators, are all that remain of what were once cities during the height of the mining activities.

Most of today's coal mining activities in Fremont County are limited to small operators employing only a few miners. Many of the operations consist of family units with a father-son setup and service of these units employ no outside help. Trucks now carry the coal from the mine to the user instead of long trains made up of loaded coal cars which were used in years past. The economy of Canon City and the surrounding communities was adversely affected by this great employment decline in the coal industry.

We have actually three communities that surrounded Canon City that were once fairly large communities, and I would like to refer to the United States census of population to give you an idea of how those three suburban communities have dropped.

In 1920 Coal Creek was a mining community, and had 618 people; in 1930 it had dropped to 435; in 1940 it had dropped to 261; and in 1950 it had dropped to 195.

A similar case has been in the one which we know as Rockvale, where it had a population of 1,249, and that has dropped to 710 in 1930; 575 in 1940, 380 in 1950.

That is just an example of how some of these surrounding communities have decreased in population due to the amount of reduction in coal mining.

The Canon City area has a reserve of over 900 million tons of bituminous coal. With this great reserve the community is vitally interested in seeing that something is done to use these reserves for the benefit of humanity. In this regard it is suggested that more definite action be taken to further explore the field of coal hydrogenation in the production of liquid chemicals from coal. It is felt that the coal deposits in this area would lend themselves to low carbonization and therefore such a plant would be of utmost benefit in helping to bolster the overall economy of the Canon City area.

It is felt that the manufacture of byproducts from coal has a tremendous future in our country. Such a program would be of utmost benefit to the national defense as well as to the public safety.

We urge that some action be taken to use the coal deposits in Fremont County for the manufacture of byproducts through coal hydrogenation or some other process or combination of processes.

That is all I have to present. I thank you very much for your time, and will be glad to answer any questions, if I can.

Mr. METCALF (presiding). Thank you, Mr. Davidson, for a helpful statement.

Does the gentleman from Pennsylvania have any questions?

Mr. SAYLOR. Mr. Davidson, I notice that you are also in a petroleum area; is that correct?

Mr. DAVIDSON. There are some petroleum products pumped in the east end of the county.

Mr. SAYLOR. Does your community own its own electrical facilities, such as has just been testified to in Walsenburg?

Mr. DAVIDSON. No. Canon City is served by Southern Colorado Power Co., who have one plant in Canon City of 16,500 kilowatts, and are making a $5 million addition to that plant this year, and they

will double their consumption of coal within that particular plant.

Mr. SAYLOR. That is all.

Mr. METCALF. Mr. Dawson.

Mr. DAWSON. I notice from your chart your petroleum production is less in 1955 than it was in 1945. To what do you attribute the loss in petroleum production?

Mr. DAVIDSON. Yes, sir, that is approximately 7,000 barrels it has dropped off in those 10 years. I cannot give you an exact answer on that, sir.

Mr. DAWSON. Of course, we can explain the loss in coal production by reason of the loss of market, but there is no loss of market in petroleum. It seems to me your petroleum production should be going up, provided your fields are still productive.

Mr. DAVIDSON. Yes, sir. That is something I cannot answer, but I will get the answer and send it to the committee.

Mr. DAWSON. That is all.

Mr. METCALF. Mr. Chenoweth.

Mr. CHENOWETH. Thank you, Mr. Davidson, for a very helpful statement. I personally know what your situation is. You have been one of the leading coal areas of the State for many years. It suffered in the decline of the industry like the other areas. We are hoping we are going to be able to come up with some solution to this problem. We are going to do our best.

Thank you for coming.

Mr. DAVIDSON. Thank you.

Mr. METCALF. We have heard from some of these Navy men around here. I want to say that I know you have suffered from the decline in natural resources, and so forth, but you have certainly gained in human resources.

As an old member of the 60th Infantry Regiment, 9th Infantry Division, I understand my outfit has been sort of adopted by Canon City, and I compliment you on having a good fighting outfit.

Mr. DAVIDSON. Thank you.

Mr. METCALF. Thank you very much.

Call the next witness, Judge.

Mr. CHENOWETH. I am going to call Mr. Gordon Rowe, president of the Trinidad Chamber of Commerce.

Is Mr. Lake of Steamboat Springs here?

Mr. LAKE. Yes.

Mr. CHENOWETH. You will come next, Mr. Lake.

I would like to state to the committee that Mr. Rowe is president of the chamber of commerce in Trinidad, which happens to be my home city, where I was born and raised.

He is going to present to you conditions of which I am keenly aware. I want my colleagues on the committee to know about the situation in my home town.

Mr. METCALF. Mr. Rowe, we are glad to have you with us.

Do you have a prepared statement?

Mr. ROWE. I have an oral statement I would like to give, and if you wish I can submit one afterward and send it to you later.

Mr. METCALF. Give your full name, and of course you are representing Judge Chenoweth's home. Proceed in any way you see fit.

STATEMENT OF GORDON H. ROWE, PRESIDENT, CHAMBER OF COMMERCE, TRINIDAD, COLO.

Mr. ROWE. Thank you, Mr. Metcalf.

It is indeed a pleasure to be here this afternoon before this congressional committee. I felt when I came into this meeting that I just did not know how I was going to feel about it and how I was going to be received, but after having spent the greater part of this day with this committee, I find the United States Government does have some people who will listen to our problems.

I think it is one of the finest presentations I have ever seen where Mr. Commonman can meet with our administrators, and I believe that something good will come out of this meeting.

I have all of the confidence in the world that this committee will see that something good comes not only to Colorado but to our surrounding States.

We are in dire danger, as you all know. In fact, Huerfano County, so named in Spanish, means The Orphan, and we figure in Trinidad we might have to call that Huerfano too if things keep up as they are at the present time.

As you know, primarily coal production has been the lifeblood of Las Animas County.

I might go back to refer to the chart that you have and you will notice in 1910 Las Animas County produced over 5 million tons of coal per year. It was 5,595,000. That was one of the peak years.

Compare that directly with 1956, which has just closed, and you will find that we had 1,020,000 tons, approximately. Practically 5 or 5½ times more production in 1910 than in 1956.

1917 and 1918 were our peak years. At that time we had a great number of coal mines, independent coal mines. As you will notice, in 1 year we had as high as 63 mines. At the present time we have 22 mines operating.

Do not be misled about that number 22, because those are actually small, what we call small mines, and most of them are not working daily.

They have a staff of something like three employees per mine.

Ninety-six percent of all of the coal that is being produced in Las Animas County today is being produced by Colorado Fuel & Iron Corp. in two mines, the Allen Mine and the Valdez or the Frederick Mine. That represents 96 percent. They are, shall be say, captive coal mines. That coal goes directly to Pueblo where it is turned into coke and so forth for the production of steel in Pueblo.

We are very happy to have it. Without that in Las Animas County, Trinidad practically would be wiped off the map and we would be suffering as acutely as Walsenburg today. We are very grateful, of course, that we do have that kind of production, but the very lifeblood of our community, of course, depends on local production by local miners.

At the present time we have approximately 1,215 miners employed by the Colorado Fuel & Iron and only 65 miners for the other 20 mines. That will give you something to think about. Numerically speaking, you say, we have a lot of miners in Las Animas County, but they are not producing very much coal at the present time.

I might go back and digress a little bit, with your permission.

When I first came to the United States I first came to Cripple Creek, where I became actively interested in gold mining. Since 1910 up to the present day I have been rather or very closely connected with mining, and especially from the economic point of view, because mining to me is not only that it got into my blood as a miner but got into me because of our economy. And I think some of the finest people in the world I have found living in such coal towns, and I am very proud to say I am a part of that.

Since 1910 I have watched the progress, and at the same time we all know it is very, very deplorable. When I came to Las Animas County first there were about 35,000 or 36,000 people in the county. Today there are 27,000.

This morning some of the gentlemen said—and I think Mr. Dawson brought it out too—what happened to those people?

If you would join me and go to Hollywood for the Trinidad picnic you would find those people there. The last 2 or 3 years the picnic is held annually in Los Angeles, and there are anywhere from 15,000 to 17,000 people who come out of our district who congregate there to see people from Trinidad.

You say, "How many people do you have in Trinidad?"

I will tell you we have 12,800. So our coal miners did not stay in the State. They are not actively engaged in any other enterprise. They have gone to California. California's gain is our loss.

I know you are here today in the interest of seeing what you can do in the coal mining industry and it is of vital importance to us. It is the very lifeblood of all the communities, as you know, in Wyoming, Colorado, New Mexico, Nevada, Montana, and others.

Replacements at the present time will not do the job because we do not have the transportation.

Trinidad is very ideally located as far as railroads are concerned. What do we have? We have three major railroads. We have the Santa Fe trunkline, the C. & S., the Burlington and also the D. & R. G. and the Colorado & Wyoming. We are ideally located. Transportation with us should be even in better condition than we have got right here in Pueblo but I am not here to discuss why we are better than Pueblo.

But I am here to tell you that we need a shot in the arm. There is no question about it, and I believe we are on the right track.

I might say, as I have looked over the situation a very deplorable thing has happened in Las Animas County. I do not know whether the judge realizes it or not, but the people who once were in our mining camps are gone entirely.

May I take a moment to tell you that we have lost 17 camps in which there is no one living today as coal miners. They are: Starkville, Suffield, Bowen, Hastings, Helagua, Tercio, Cuatro, Primero, Cokedale Bon Carbo, Berwind, Tobasco, Tollenberg, Three Pines, Vallorso, Sopris and Morley.

Morley just ceased to exist as of last year.

I heard them tell this morning about what is left of these camps. I will tell you what is left—just the foundation and the memory of the echo of footsteps that used to be there. But economically they are gone and gone forever.

Another bad feature about reopening old mines, we know that is almost prohibitive. The mines around New Mexico and Trinidad, those mines cannot possibly open up. It would take over 2 years to put them back into production. Railways have been taken out and nothing left in there. In fact, I think there is a State law in most of the States now in which the entrances have to be closed. I guess you are conscious of that.

That is what is happening to New Mexico and in some cases in our State. You will have to look for new openings.

I might mention that the Colorado Fuel & Iron mines are now producing one-third of all of the coal in Colorado. It is coming out of those two mines, and they have not reached their possibilities. They are the most highly mechanized mines in the world. In fact, I have happened to live on different continents and I find these are the finest and best equipped and most productive mines.

They have a capacity at the present time of 6,500 tons per day. If you will compare that to Walsenburg's 62,000 they can produce as much in 10 days as the whole county of Huerfano did last year.

Gentlemen, that is a low economy for Walsenburg. We would like to see if something cannot be brought about.

The atomic age is not here yet, that is, and we have to look around for coal to be used to pick up the slack. Maybe in 10 or 25 years the atomic energy will be here in a form that it will surpass what we have at the present time, and cheaper. But at the present time I think if we could only get our Government to find ways and means of using coal or producing coal—aspirin, as you all know, is one of the items made out of coal. There are thousands of things that can be made out of coal, and it would be all to the benefit of mankind.

I will say I think the tar proposition maybe will lead to something in the future, and I think that is food for development. I think that the gentleman should develop ways and means for utilizing coal to make other products.

Most of you have been through the Rifle shale plant. I went through it and it was very, very interesting, but I think what we find out at the pilot plant there would apply not only to Walsenburg, but to all of our State. I think that we could produce oil, gasoline, as cheap or if not cheaper than coming out of the ground.

I will not indulge in any more of your time, but I do want to say that it has been a pleasure to have appeared before you, and we in Trinidad and the chamber of commerce and I, as an individual, would be glad to work in any shape or form with the United States Government because we certainly do need aid for our economy and for our future.

Are there any questions?

Mr. METCALF. Thank you, Mr. Rowe, for an able and helpful statement.

The gentleman from Pennsylvania?

Mr. SAYLOR. I just want to thank you for coming up here. Not that anybody ever had any doubt about what Judge Chenoweth was telling us about the conditions in his own home county, but it is delightful to know that you would come up here and verify it in every detail. It is a pleasure to have you here.

Mr. ROWE. Thank you. May I introduce our committee at this time?

Mr. METCALF. Certainly. We will be glad to meet them, Mr. Rowe.

Mr. ROWE. Harold Frank, manager of the chamber of commerce. Shaker Azar, immediate past president of the chamber of commerce. Frank Coke, who happens to be one of the small operators of independent mines, and he has suffered immeasurably in this deal. If there are any questions you would like to ask Mr. Coke on how you run a wagon mine, I know he would be happy to answer them.

Mr. METCALF. We are very glad to have them introduced to the committee.

Mr. Dawson, do you have any questions?

Mr. DAWSON. I have no questions, but I am interested in the comment you made on what you do with displaced miners—send them to Hollywood. I thought that was pretty hard and took pull. That is a new angle.

Mr. METCALF. If the gentleman will yield. Maybe they went to Hollywood after Colorado's water. [Laughter.]

Mr. DAWSON. Perhaps we are overlooking something there.

Mr. ROWE. They were forced out of Trinidad and had no place else to go. I do not know that they became great actors since they have gone there.

Mr. METCALF. Judge Chenoweth.

Mr. CHENOWETH. Gordon, I want to thank you for a very fine statement. When you read over that list of abandoned camps in Las Animas County, it brought back some fond memories, I am sure, to Bob Hair and other Colorado Fuel & Iron officials. It also brought back some memories to me, too.

Some 30 years ago I happened to be working for the Colorado Supply Co., a subsidiary company of the C. F. & I. Co., and I used to call upon stores located in many of those camps which you just mentioned in your list. There is nothing there now?

Mr. ROWE. Not a thing.

Mr. CHENOWETH. Berwind, I believe, at one time, had some 4,000 people, and there is not a single person there today?

Mr. ROWE. That is right.

Mr. CHENOWETH. Everything is gone?

Mr. ROWE. Yes. I wrote an article on Morley entitled "Shall Morley Be No More?" That is the last camp that went out, and I had about 300 requests from people who lived in Trinidad formerly who asked for a copy of it. Not that I am a great writer, but it is a story they knew and knew well.

Mr. DAWSON. Will the gentleman yield?

Mr. CHENOWETH. Yes.

Mr. DAWSON. I would like to say this: Even though the production of coal has gone down, as long as you can continue to produce people like Judge Chenoweth, you do not need to worry about coal.

Mr. ROWE. Thank you.

Mr. CHENOWETH. I appreciate that, Bill. We need help in Trinidad. We need help in Walsenburg. They are very similarly located. You heard the picture from Walsenburg today perhaps in a little more graphic way than Las Animas County, but the counties are similarly located, depending upon the same resources for their economy, and both are suffering a great deal.

I appreciate your presence and also the delegation that came with you, Mr. Rowe.

Mr. J. F. Lake of Steamboat Springs. Come up Mr. Lake.

Is there anyone here representing the Craig Chamber of Commerce?

Apparently no one is here.

Proceed, Mr. Lake.

STATEMENT OF J. F. LAKE, MANAGER, OSAGE COAL CO., STEAMBOAT SPRINGS, COLO.

Mr. LAKE. My name is J. F. Lake, manager of the Osage Coal Co., Steamboat Springs.

I did not come down here to make any statement at all. In fact, I came only to add quantity and not quality to your hearing.

I would like to state that we are very interested in research, certainly, and are a contributor to, and endorse the program of the National Coal Association in the efforts they are putting forth.

It seems that you people have probably learned here today, if you did not already know, that our problem out in Colorado is more or less at the present time a sales proposition. Being in the operating end, I feel that, if it is necessary for further statements to be presented here, probably our sales representative is in a better position to present them than I am.

I think Mr. W. G. Joyce has a statement that could be presented that would lend more to your efforts, as they have turned out, than I can.

Mr. CHENOWETH. I think Mr. Joyce represents the Pittsburg & Midway Coal Mining Co. Is that right?

Mr. LAKE. Yes.

Mr. CHENOWETH. We had a very fine statement from one of their representatives in Tulsa, Okla., Saturday, and I have him listed to appear here today.

Mr. LAKE. Thank you.

Mr. EDMONDSON. We appreciate your attendance here very much.

Mr. SAYLOR. Mr. Lake, you are the first witness we have had today, I believe, from the west slope of Colorado.

Mr. LAKE. I think that is correct; yes, sir.

Mr. SAYLOR. In your area, how many mines are operating?

Mr. LAKE. In our area there are about six mines, I think, except probably a few family mines that are opened more or less on a cooperative basis.

Mr. SAYLOR. These mines you referred to are in the general area of Steamboat Springs?

Mr. LAKE. They are in Routt and Moffat Counties in the northwest, the two counties in the northwest of Colorado.

Mr. SAYLOR. Thank you ever so much.

Mr. CHENOWETH. Does Mr. Joyce want to follow you now?

Mr. LAKE. If agreeable with you.

Mr. EDMONDSON. That will be fine.

Mr. Joyce, we are happy to have you, and if you make as fine a witness as Mr. Phelps did Saturday, we know you will make a real contribution to the committee.

STATEMENT OF W. G. JOYCE, CHAIRMAN, COLORADO COAL COMMITTEE

Mr. JOYCE. Mr. Chairman, that is a big chore.

I want you to know it is a pleasure and a privilege to appear before you and the other honorable members of the committee.

My name is W. G. Joyce. I am employed by the Pittsburg & Midway Coal Mining Co. I serve in the capacity of western sales manager, with offices located in the University Building, Denver, Colo. I am also chairman of the Colorado Coal Committee, whose office is at 650 Equitable Building, Denver, Colo. It is in the latter capacity that I appear before you gentlemen. Consequently my remarks will be with reference to problems relating to noncaptive production throughout the State.

We are aware of your keen interest in the welfare of our industry by your presence here today. I wish to express the appreciation of all members of our committee for the privilege of presenting the problems confronting us and some suggestions for relief, which I will attempt to do briefly.

Statements have been presented giving the statistical data with reference to the loss of production of noncaptive mines, the number of men who have lost work as a result, all of which reflect the degrading of the coal industry in a State that ranks among the leaders of her sister States in bituminous coal reserves.

The production of coal in the State of Colorado is insignificant when compared to national production. The result is that the plight of the industry within our borders is overlooked or regarded as inconsequential by those looking at the national picture as a whole. But it is very realistic to the Colorado mine operators.

There have been times in the past when the production of our noncaptive mines played a vital role of importance to the State and Nation. The industry was capable of rising to these emergencies of the past. This will not hold true in the future if lack of foresight permits it to deteriorate beyond the point of recovery which is fast approaching, if not now existing.

The demand for noncaptive coal is seasonal. Our mines are considered fortunate if they average 1 or 2 working days weekly, from March until August each year, and rarely do they realize a 5-day workweek from August through February. Frankly, our industry is simply a standby for natural-gas consumers.

The economics involved point to a complete collapse of the noncaptive coal operations in the State of Colorado with the exception of very small truck mines.

This is a serious situation, the solution of which is vital to our State and Nation. Just how serious the matter is may be realized by considering a single example.

The Public Service Co.'s steam-generating plant located in Denver and its environs would consume over 1 million tons of coal annually if they used coal exclusively. The source of their coal supply is located within the counties of Boulder, Moffat, Routt, and Weld. The total production of all mines in the counties during the calendar year of 1956 amounted to 1,223,774 tons, or the approximate equivalent of the fuel-energy requirements of this single consumer. It is true coal

production from these sources of supply could, and we honestly hope will, be increased, but the point I wish to emphasize is that production of the mines dependent upon this lone consumer is far below the danger line if an acute emergency arises.

It takes time to increase the production of the average Colorado coal mine, and one of the basic reasons, which is lost sight of occasionally, is the fact that the coal industry in our State is not attracting young men.

The result is, experienced miners are becoming scarce. Some are leaving for eastern fields or captive coal operations where work is far more steady and lucrative. This also is a matter of prime importance and bids ill for the industry in Colorado and elsewhere if steps are not taken to correct this situation. The best answer to this problem, in my opinion, is a healthy coal industry.

I am sure that most coal consumers and public officials as well are not aware of the serious situation that exists within our industry as far as Colorado is concerned. This I believe is the fault of the coal industry itself.

Most of us have been too concerned with our individual problems and not concerned enough with the problems of the industry as a whole. The natural-gas companies do not compete with each other as we do and consequently can take speedy action concerning their policies.

Consequently we grasp at this opportunity to tell our unhappy story to willing listeners—I hope—much as a drowning man will grasp at a straw. I regret to say we have only about as much hope for survival as he.

Natural gas is, in relation to the noncaptive coal-mining industry of Colorado, what cancer is to the body. Its inexpensive use and greedy appetite has displaced our coals. It has done so with the blessing of our various governmental agencies which permits the importation of these valuable fuels within our State on a monopolistic basis and without regulation of direct off-line sales. Such sales permit the natural-gas company to dump their product at any price to the ruination of our industrial coal markets and, in fact, our noncaptive industry as a whole.

It is our opinion that where one basic fuel industry is permitted to virtually destroy another, there is a necessity for governmental research and action in the public interest.

The Government has furthered our decline through their purchases of natural gas for their service installations and other activities within our borders. The coal consumption of these various institutions would go a long way in giving us relief.

One cannot help recall the demands made upon us during the war by the Government when we were told they were not ordering but demanding coal from us. The industry arose to meet the emergencies placed upon it, only to see their coal replaced by natural gas in virtually every activity after the war. In meeting the demands of the day, it was necessary to neglect many substantial coal consumers who likewise converted their plants to natural gas as a result.

The Colorado Coal Committee made every effort to present coal in a favorable light to the Secretary of the Air Force for use as a primary fuel at the Air Academy now under construction, but natural gas again won out.

This regardless of the fact the site of the Academy is underlain with coal and a mine is operating within a few miles of its southern boundary line. This is a good example of what natural-gas competition can do to the coal industry. When you have a coal mine virtually on the site of an institution in Colorado and cannot compete with natural gas imported from Texas, I would say an investigation of some sort is in order.

In that connection, gentlemen, I would like to submit a brochure that the Colorado Coal Committee submitted to the then Secretary Talbott as a mater of record.

I am presenting that so the committee will realize that the coal industry has made some effort to encourage the use of coal in governmental installations. We have not stood idly by. We have spent money, and we have spent a lot of effort in order to convince the Government that coal was the economical fuel for their primary fuel energy requirements.

We have no quarrel with natural gas as such and profoundly feel it has its place in our economy and in fuel-consuming markets, but we do not feel the coal industry of our State should be sacrificed for the benefit of 1 or 2 natural-gas companies and pipelines. There is a market and place for both fuels. It is apparent for the Government regulation, equitable to both industries, is of primary importance. Coal is a basic commodity that contributes to the welfare of our State and Nation. To not regard it as such is risking the peril of disaster to both.

Consider, if you will, the coal reserves of our State alone in comparison with natural-gas reserves of the Nation as a whole. Coal reserves within the State of Colorado are estimated to be sufficient to supply the entire national fuel requirement for many years. Natural-gas reserves within the entire Nation are estimated at approximately 22 years, and less than 2 percent of the known total fuel energy resources of the Nation. Surely we are shortsighted, indeed, if we do not conserve this valuable reserve of natural gas. It is far too valuable to be wasted on industrial and institutional boilers. This waste is the result of greediness of our present generation. Do we not have some responsibility to conserve our natural-gas reserves for the use of future generations?

The example of cause and effect which I have placed before you simply means that noncaptive coal-mine operators are in a desperate situation. They need help and all the help that your committee can give them. More mines close each year. More mines will continue to close until there is no semblance of an industry left. Such means the abandonment of the huge coal reserves of this State. It means the abandonment of rail lines. It means a severe blow to the economy of our State and Nation. It means in time of a national emergency a source of vital fuel will be lacking where once it could be, and has been, counted upon. It means noncaptive mines in Colorado need help now. The emergency is immediate. We respectfully submit the foregoing for your serious study and understanding of our difficulties and suggest the following courses of action be presented to Congress to assist noncaptive coal mines in Colorado to resume active operations:

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(1) Conserve our natural gas resources.

(2) Reconversion of Government activities and institutions to the usage of coal as a primary fuel.

I wish to add to the suggestion of conservation, that it be given serious consideration that natural gas be curtailed in an inferior usage under industrial boilers and institutional boilers as well.

(3) Have the State of Colorado designated as a separate and distinct area for the purchase of some export tonnage as long as the present distress conditions of the coal industry remain within the State.

That is all, gentlemen, I want to thank you very much for the opportunity of presenting that to you.

Mr. EDMONDSON. Thank you very much for a very fine statement.

If there is no objection, the material supplied by the witness will be made a part of the committee files and we appreciate very much being supplied.

(The documents will be found in the file of the committee.)

Mr. EDMONDSON. To your knowledge, has this Department of Defense memorandum directing the use by military establishments of coal wharever practical, ever been superseded by any other Department of Defense ruling on the question?

Mr. JOYCE. No; not to my knowledge.

Mr. EDMONDSON. I think you have given us some interesting material and a good deal for thought.

Are there any questions?

Mr. SAYLOR. Mr. Joyce, is this substantially the same recommendation that was included by the President's Committee on Coal, which made its report and said that the military should use coal in all military establishments?

Mr. JOYCE. I beg pardon. With reference to that brochure?

Mr. SAYLOR. Yes, sir.

Mr. JOYCE. No. That was prepared by the committee at the time the site north of Colorado Springs was designated as the area for the Air Academy. Of course, it was not known at the time whether they would use coal or natural gas, and in an effort to persuade them to use coal, we went to that effort.

Mr. SAYLOR. What happened as a result of this? Did you just send this to Washington?

Mr. JOYCE. We sent it to Washington, we sent it to the Honorable Mr. Chenoweth, we sent it to all of our Senators and Representatives, and we sent it to the National Coal Committee, and we distributed it very widely. We had a lot of requests for that brochure. It got quite a little bit of notoriety. We followed it up with personal letters and appeals.

We finally had a meeting with the engineers at the Air Academy, and they told us they were considering coal as a result of that, but natural gas is going in. It won out.

Mr. SAYLOR. Is the company which employs you employed in the western slope development or in the eastern slope development?

Mr. JOYCE. The western. We are in the northwest corner of the State.

Mr. SAYLOR. You are in the same area as the witness who just preceded you?

Mr. JOYCE. Yes; Mr. Lake.

Mr. SAYLOR. Thank you.

Mr. JOYCE. You are very welcome.

Mr. DAWSON. I want to commend the witness. I think your conclusions are very much the same as our witnesses from Utah in regard to this matter.

Mr. JOYCE. Yes.

Mr. EDMONDSON. Judge Chenoweth.

Mr. CHENOWETH. It is a very fine statement, Mr. Joyce. I have just one inquiry about the coal committee. Tell us what that is.

Mr. JOYCE. The Colorado Coal Committee is made up of the State committees with reference to fuel and conservation of fuel. It is made up of various memberships of various railroads and the coal operators throughout the State that are noncaptive.

Mr. CHENOWETH. How many members do you have in this organization?

Mr. JOYCE. I think at the present time there is approximately twenty-some-odd.

Mr. CHENOWETH. Who contribute to the expenses?

Mr. JOYCE. Yes.

Mr. CHENOWETH. That is all.

Mr. JOYCE. The purpose of the committee is purely to promote the sale of Colorado coal, not the sale of any one company's, but the sale of Colorado coal as a whole.

Mr. CHENOWETH. Would you call it a mining association related to coal?

Mr. JOYCE. That is right.

Mr. CHENOWETH. Thank you very much.

Mr. EDMONDSON. Thank you.

Call the next witness.

Mr. CHENOWETH. The next witness is Mr. Ralph Sargent, of Denver, assistant to the president of the Public Service Company of Colorado, and with him is Charles E. Beatty, division manager of the Public Service Company of Colorado, in Grand Junction, Colo.

Mr. EDMONDSON. I think it is interesting to note that at this time Saturday in Oklahoma we had heard 14 witnesses. Today we just heard our 22d witness, indicating your folks are a good deal faster than they were in Oklahoma. I hope that does not bode any ill for the football team this coming fall.

STATEMENTS OF RALPH SARGENT, JR., ASSISTANT TO THE PRESIDENT, PUBLIC SERVICE COMPANY OF COLORADO, DENVER, COLO.; ACCOMPANIED BY CHARLES E. BEATTY, DIVISION MANAGER, PUBLIC SERVICE COMPANY OF COLORADO, GRAND JUNCTION, COLO.

Mr. SARGENT. Mr. Chairman and members of the committee, my name is Ralph Sargent. I am assistant to the president of the Public Service Company of Colorado, and I have with me Charles E. Beatty, who is the division manager of the Grand Junction division of the company.

We were invited to appear at this hearing by Congressman Aspinall, who felt that this committee might be interested to hear about the

construction of our Cameo plant. That is a mouth-of-the-mine plant on the western slope, and Mr. Beatty is here to explain to the committee the arrangements that we have in connection with that plant.

I might say, before Mr. Beatty makes his statement, that we seem to be, as public utility engaged in both the business of distribution and sale of electricity and gas, both friend and foe here. I want to say, that we certainly appear here as a friend of the coal industry.

We look at the future as our company being the major user of coal for the generation of electricity in the State. Our company in the year 1956 consumed in connection with its steam generating plant approximately 12 percent of the coal produced in the State.

As we look to the future we see nothing but further increases in the use of coal in connection with the production of electricity at our steam-generating plant.

I am particularly glad that the company has been given the opportunity to appear here in connection with these hearings at the suggestion of Congressman Aspinall, because I feel that we can perhaps inject some note of optimism in the record which I am sure you people will be glad to hear.

At this point I would like to present Mr. Beatty. He will refer to a map which I have had passed out to the members of the committee.

Mr. Chairman, we might have that map put in the record if it is agreeable with you.

Mr. EDMONDSON. Preparation of a colored map for our record presents some problem. With your permission, I think we can secure permission at this time to make it part of the file and see what we can do.

Mr. SARGENT. All I had in mind was that it be made a part of the file of the committee, that perhaps the members of the committee would like to refer to the map as Mr. Beatty is presenting his testimony. That is what I had in mind.

Mr. EDMONDSON. Without objection, it will be made a part of the committee file.

(The map will be found in the file of the committee.)

Mr. BEATTY. Honorable Chairman and members of the committee, Congressman Aspinall asked me to make a short statement to you on what the Public Service Company is doing at Cameo.

I might add, had I realized Mr. Dawson was going to be interested in where the plant of the Union Oil Co. was, I would have added to this map the location. It is, Mr. Dawson, on that red line, just north of the town of Grand Valley. Right at the end of that line is the location of their experimental oil shale plant.

The division over which I have responsibility starts roughly at Shoshone and follows the Colorado River Valley down to Grand Junction, as shown on this map.

We are primarily an electric distribution setup in the Grand Junction division. However, we do serve natural gas in the city of Grand Junction and the towns immediately surrounding it.

About 2 years ago it became apparent we were going to have to have additional capacity in the Grand Junction area, and when we started looking for plant sites, we immediately came to the point of a town and mine site of Cameo, which is 4 miles east of Congressman Aspinall's hometown of Palisade, which is very nearly an ideal situation for the plant.

It was close to our load center of Grand Junction. It was a ready source of fuel. Water was adjacent in the Colorado River and in the canal system of the Grand Valley irrigation system. And there was adequate space for increasing the size of the plant as well as the coal storage.

Likewise, if we could locate a plant at mine site, which is something you feel you always want, we are going to get away from coal transportation, which is a sizable portion of the cost of fuel laid down at any utility plant.

The mine itself was an old mine. It had been in operation for about 60 years. Not in the same family or the same ownership, but it has been well developed and well preserved.

History shows that it has a high yearly production of 98,000 tons, which has gradually dropped to 17,600 in 1954. However, in the latter part of 1955 we changed the method of operation in the Grand Junction steamplant, so that during 1956 this mine has produced 50,000 tons of coal, about 80 percent of which was sold to Public Service Co.

The owner, when we approached him about the possibility of supplying coal for a large sized plant, was very cooperative. We found him ready and willing to think about a long-term contract which would supply us with an adequate supply of coal. In working out the contract we had a lot of things we had to work out to guarantee him against increases in the cost of labor, materials, taxes, and all the other items that go into it; likewise, to give the company certain production if he reduced his cost by reason of mechanization, which he could probably do with increased production.

At the present time he is using coal cutters and is not a hand-operated mine but the older type of operation.

In addition to the coal that the operators currently have under contract, there was immediately adjacent to his mining property Government land containing coal which was available for lease, and the operator has been able to obtain leases on this coal, which gives him a sufficient reserve to assure us of 25 years of 100-percent coal operation at this particular mine, if necessary.

The plant, as planned now, is planned for operation of 100-percent coal; this despite the fact that the Pacific Northwest Pipeline Co. is about 20 miles west of Grand Junction with a large available source of natural gas.

The plant is laid out to contemplate 5 units, the first unit of which will be 22,000 kilowatts in size, will go into operation late in 1957. The ultimate capacity of the present plant will be 265,000 kilowatts, as presently planned. Just when we cannot say, but it depends entirely upon the growth of our area.

We do fel that we are in a situation something like sitting on top of a volcano that can erupt overnight on us.

During the first year of operation of the new plant at Cameo we will probably require some 80,000 tons of coal for production and an additional 15,000 tons in storage. This will be in addition to whatever coal we use in our present Grand Junction steam plant. Ultimately at the top capacity, because of the way the plant operates, with some units out of service, the lower units, smaller sized units, usually being the least efficient units, we estimate the annual requirements of this plant will be 500,000 tons of coal.

The mine is in no sense of the word a captive mine. During the years they had built up not only outside sources of sales, but we want them to continue to sell to outside people.

We estimate that probably during the first year of operation, as the mine is operating now, there will be an increase in man-days of work to the coal miners in the neighborhood of 12,000, and that this can probably be increased to approximately 50,000 man-days at the time we reach the ultimate capacity.

I might add, gentlemen, that the Cameo mine is the only railroad mine in Mesa County. There are about nine other small mines within the area. If history follows its natural course, we will in all probability find that some of these mines will be approaching us to buy coal from them and we will certainly do so because we are in turn selling them kilowatt-hours of electricity.

The biggest thing that we see to this particular type of operation is that we will have a modern plant, more or less on a base load, capable of competing economically with our plants in the Denver area, and that it will give to the miner a source of steady employment, because our 80,000 tons of annual capacity will be down in the neighborhood of 275 tons every day in the year. That means that during the working period the mine is going to have to put out approximately 400 tons per day.

We will need continuous work from those folks. To me it offers a very golden opportunity to the coal miner who some of the previous witnesses stated worked only 2 to 3 days during the summer months, and for the next 6 months are sometimes not even that per week.

The company is not unaware of the fact that some of the operators selling us coal on the eastern slope, or eastern-slope plant, have the problem of an up-and-down setup, as brought out by Mr. Joyce just briefly.

I would like to state that we are presently working out a scheme with the operators to try to even out the flow of this production. It involves quite a bit of storage, but I am sure with the help of the operators and our own engineering department, this can be done. If that can be worked out, then this summer the unemployment situation in the coal-mining industry should be evened out, and I think the flow of men willing to go back to the mines will improve.

Congressman Aspinall asked me if I would just make a short statement to you gentlemen as to what we feel is the best way of helping the coal industry out.

I think the previous witnesses have pretty well covered the situation. I would just like to state that we have a lot of available coal in the comparatively empty areas of Pitkin and Gunnison Counties. But in the service area of my company and the adjacent Western Colorado Power Co., with headquarters at Montrose, Colo., those mines could be helped in getting into production with some more study on the hydrogenization and coking, but they have a transportation problem. They are all truck mines. They have got to transport their coal to railheads.

One mine we are presently serving with electricity is producing about 600 tons of coal a day and have to haul it over very bad roads approximately 15 miles to railheads.

If some help could be worked out similar to the help that has been worked out on the mine-access-road program for the uranium miners

and the nonferrous metals industry, I think it would be of some help.

Another item of transportation that might be thought about would be something such as the pipeline that has just been put into operation for the transportation of coal to Cleveland. I think there is 108 miles of pipeline. Perhaps some further research on that type of transportation where the mines could get their products down to railheads without going over the bad roads, fighting the snow conditions we have up here in the wintertime, would be a big help.

I think that is all I have, gentlemen. I would be happy to answer any questions.

Mr. EDMONDSON. Mr. Sargent, I think you have supplied some highly interesting information to the committee.

What is the present capacity of your system in your area that the Cameo mine and Cameo plant will be supplying?

Mr. SARGENT. In the area itself we had a plant of 20,000. So it will approximately double the capacity.

Mr. EDMONDSON. You have plans for multiplying that 10 times over, if I heard correctly.

Mr. SARGENT. Yes, sir. Our system capacity is in the order of 590,000 kilowatts.

Mr. EDMONDSON. That includes——

Mr. SARGENT. The eastern-slope area.

Mr. EDMONDSON. I think that is highly interesting.

May I ask this further question: Are you utilizing rapid tax amortization in this construction of this generating plant?

Mr. SARGENT. I presume the company will apply for a portion of the plant to be amortized rapidly in accordance with the usual practice that we have done heretofore.

Mr. EDMONDSON. Is any major factor in this expansion at this time, the availability of that tax benefit?

Mr. BEATTY. No, Congressman, it is not a major factor. As a matter of fact, I am not advised that the company is going to seek a certificate to authorize the company to take accelerated amortization on construction of that plant. We have similar certificates on our Denver plants, but I am not advised that the Cameo plant will be under that program.

Mr. EDMONDSON. Mr. Metcalf.

Mr. METCALF. I want to thank you for bringing to the committee a pattern that I hope will be a pattern for the whole future of this industry in this area. I hope that some of our utility people a little further north will use the same pattern.

In Oklahoma one of the witnesses made a statement, with which I concur, that we are going to need all of our fuel sources, all of our power sources. And certainly you are foresighted here in looking ahead for the development of this important natural resource for a power source down there in an area that is rapidly growing. It is a bright spot, an optimistic picture in this whole affair.

Mr. SARGENT. Thank you, sir.

Mr. EDMONDSON. Mr. Saylor.

Mr. SAYLOR. I would like to join my colleagues in congratulating yon on the mine you have at the Cameo to use coal.

Let's try to get the whole picture. I notice here on this map you have, I believe, 10 steam plants and 8 hydroelectric plants. Is that substantially correct?

Mr. SARGENT. Yes, sir.

Mr. SAYLOR. In the 10 steam plants, how many of them use coal?

Mr. SARGENT. They all use some coal. Let us start out with that premise and let's count those that have another form of fuel. I think that would be a little faster. The hydro plants naturally would not.

Mr. SAYLOR. In other words, on the 10 steam plants?

Mr. SARGENT. Yes. Five of those plants have other types of fuel.

Mr. SAYLOR. What are the other types, both gas and oil?

Mr. SARGENT. Gas usually, and 1 or 2 of them have some oil, put in some oil.

Mr. SAYLOR. Has your company made a study of the use of coal in these plants or were they originally coal plants and then converted to gas?

Mr. SARGENT. One of the oldest plants, which is a combined plant, is the plant just outside of Boulder known as our Vallamont plant, originally a coal plant, and after natural gas became available in that area, it went to gas and the coal combined.

The three plants that are located there in the Denver area were all built and started as combined plants from the time they started. They are all new since the end of the war.

Mr. SAYLOR. It would be possible to use only coal in those plants?

Mr. SARGENT. Yes, sir.

Mr. SAYLOR. The reason I ask that: I concur in the opinion of one of the witnesses who appeared here today, in which he stated he felt the tendency as far as space heating, as far as home heating is concerned, would probably continue to grow as far as gas, and therefore as a means of conserving the future home use of the supplies of gas we might look for utilities to use coal. After all, it is a good deal easier for utilities to use coal than it is for some housewife to use coal. But I am delighted to know that your company has this new plant at Cameo and the extent to which you have your plans made for the future.

To me it shows a healthy sign of looking to the future by your company. In this area where power is going to be needed more and more, I think it is a splendid indication of farsightedness of the management of your company.

Mr. SARGENT. I have some statistics that the committee might possibly be interested in, directed at your question.

For the 12 months ended December 31, 1955, the company consumed at their steam generating plants 310,453 tons of coal. In the 12 months ending December 31, 1956, the company consumed at its steam generating plants 409,983 tons of coal, or an increase of 32.1 percent in the use of coal at its steam generating plants. I think that those figures are indicative of the trend that we will see continuing in the future, at least so far as Colorado is concerned.

Mr. SAYLOR. Let me ask you this, Mr. Sargent: the company in this area feels there will be an increase of from 15 to 20 percent in the needs each year for the next number of years, next few years, probably 5?

Mr. SARGENT. Yes, sir. The growth that has been taking place in the service territory of the company has been something fantastic. We anticipate that the figures—that our customer increase will be at about the rate of 14 percent per year. And I expect, and our engineers who are engaged in studying our future electric system feel, that that trend will continue.

Mr. SAYLOR. That is all.

Mr. EDMONDSON. Mr. Dawson.

Mr. DAWSON. No questions.

Mr. EDMONDSON. Judge Chenoweth.

Mr. CHENOWETH. Thank you very much, Mr. Sargent and Mr. Beatty, for that very fine presentation. I am sorry Mr. Aspinall could not be here. I will tell him of the splendid statement you made.

Mr. BEATTY. Thank you very much.

Just before I leave, I would like to insert one other statement into the record.

Mr. Hefferly in his statement this morning—I am sure were he here, he would agree with me—made one error in just reading off about Fremont County. He stated a new plant was being built by Public Service Co. down there. That is part of the area of Southern Colorado Power Co.

Mr. EDMONDSON. Thank you.

(Subsequently, Mr. Sargent submitted the following letter for the record:)

PUBLIC SERVICE COMPANY OF COLORADO,
Denver, Colo., March 13, 1957.

Congressman ED EDMONDSON,
Chairman, Subcommittee on Coal Research,
House Committee on Interior and Insular Affairs,
House Office Building, Washington, D. C.

DEAR CONGRESSMAN EDMONDSON: In connection with the hearings in Pueblo, Colo., on March 11 by the Subcommittee on Coal Research, a question was directed by the subcommittee to the representatives of Public Service Company of Colorado appearing as to whether or not the company had been authorized to take rapid amortization on the construction cost of its Cameo plant now under construction. It was stated to the subcommittee at the hearing that the representatives were not advised that the company had received a certificate authorizing such rapid amortization in connection with this plant.

On returning to Denver and inquiring as to this matter here, I am now advised that the company did apply for and receive from the Office of Defetnse Mobilization such a certificate in connection with the facilities now under construction of the Cameo plant, pursuant to section 168 of the Internal Revenue Code of 1954. I am writing this letter to you to correct the testimony presented by the company in this regard.

I had been under the impression that the Office of Defense Mobilization had closed its expansion goals on electiric power and had not been accepting applications for such certificates for some time, and that this situation applied to the Cameo plant of the company. Actually, the expansion goals on electric power were closed December 31, 1955. Just prior to that date, however, the company did make application for a certificate as to its Cameo plant, and said application was accepted by the Office of Defense Mobilization before the closing date.

On April 16, 1956, the company was granted a certificate under section 168 of the Internal Revenue Code of 1954, pursuant to which certificate the facilities of the first 22,000-kilowatt unit of the Cameo plant of the company now under construction have been certificated as necessary in the interest of national defense during the emergency period, and 55 percent of the construction cost thereof has been found by the Office of Defense Mobilization to be attributable to defense purposes. As a consequence, the company is authorized to take accelerated amortization on 55 percent of the final cost of this unit.

It might be pointed out here that the Cameo plant of the company is located in an area which has in recent years experienced rapid growth and development in the mining and processing of uranium and vanadium. Likewise, the first substantial experimental, private development of the extraction of petroleum from oil shale within the United States is taking place not far from the location of the plant.

As stated above, the expansion goals on electric power of the Office of Defense Mobilization were closed on December 31, 1955. Such expansion goals have not been reopened by that office since that date. Further, the company has been advised by the Office of Defense Mobilization that the reopening of this expansion goal is not presently contemplated by that Office. Under the present program,

therefore, if additional generating units are to be constructed by the company at the Cameo site, the facilities of such units would not be eligible for certificates from the Office of Defense Mobilization authorizing accelerated amortization of any part of the cost of such facilities.

I would appreciate it very much if this letter to you as chairman of the subcommittee could be incorporated in the record of the proceedings before the subcommittee at Pueblo, to correct the testimony of the company presented.

If you have any further questions in this regard, please feel free to contact me, and I will be happy to furnish you or the subcommittee with any additional information that may be desired.

Very truly yours,

RALPH SARGENT, JR.,
Assistant to the President.

Mr. CHENOWETH. Mr. Bridwell.

STATEMENT OF O. F. BRIDWELL, SECRETARY, NORTHERN COLORADO COALS, INC., DENVER, COLO.

Mr. BRIDWELL. Mr. Chairman, Representative Chenoweth, and gentlemen, my name is O. F. Bridwell. I am secretary of the Northern Colorado Coals, Inc. Colorado Coals, Inc., has for members the coal operators in the northern coalfields just north of Denver.

I am secretary also to the Western Colorado Coal Producers Association which includes a good many of the larger operators in Colorado, Wyoming and Utah. This organization has for its purposes mainly labor relations, and occasionally interests itself in legislation on a national level, with the Congress, in other words.

I am also secretary of the Colorado Coal Committee. Mr. Joyce is chairman of the Colorado Coal Committee and has already testified before your committee here.

All of these organizations have their principal offices at 650 Equitable Building, Denver 2, Colo.

I have prepared a statement that I have handed to the committee and most of the points covered in that statement have already been brought before your committee, so there is no need, I think, to read the statement.

Mr. EDMONDSON. Without objection, the statement will be accepted for the record.

(The statement referred to follows:)

STATEMENT OF O. F. BRIDWELL, SECRETARY, NORTHERN COLORADO COALS, INC., DENVER, COLO.

My name is O. F. Bridwell, I am secretary, Northern Colorado Coals, Inc.; secretary, Western Coal Producers Association; secretary, Colorado Coal Committee. All these organizations have their principal office at 650 Equitable Building, Denver 2, Colo.

This statement will relate specifically to the problems of members of Northern Colorado Coals, Inc., who are owners and operators of coal mines located 10 to 20 miles north of Denver in the so-called northern Colorado coalfield. The problems of these operators are generally typical of the problems of all Colorado and many other western coal operators.

In 1920, in the northern Colorado field, 38 coal mines produced 2,351,577 tons. In 1956 this field had 8 mines which produced 643,812 tons. Two mines closed in 1956, leaving 6 mines currently operating in the field. This decline of 73 percent in production in 36 years is phenomenal when considered against the fact that the use of heat energy in all its forms has multiplied several times during that period, and the fact that Colorado's known reserves of coal are so enormous.

The cause of coal's decline lies basicly in the seemingly inexhaustible supply of inexpensive natural gas which has moved, since 1927, into the markets from

Texas, Kansas, and now from the San Juan Basin in Colorado. This gas has been able to displace coal in any fuel market it desired to take.

Still remaining for the producers of Northern Colorado Coals, Inc., are, principally, the nearby electric power market, during 3 or 4 winter months each year when the use of gas is voluntarily curtailed by the power companies; the Great Western Sugar Co., which also operates mainly in the winter; and Federal and other Government agencies, such as Lowry Field and the Federal Center in Denver; and a small amount (20 percent of the total market) of domestic and commercial business outside the principal cities, where gas does not reach.

Some of the problems inherent in the above-described situation are obvious: First, coal is now almost completely dependent upon the industrial market, which uses fine or slack coal, traditionally the lowest priced. The problem is how to stay alive depending on the low realization available on slack coal, or in the alternative, how to reduce costs so that low realization coal can bring a profit. Second, all the markets are highly seasonal. Heavy industry uses coal as winter standby fuel for natural gas. The other markets are largely wintertime markets. The 6 remaining mines in the northern Colorado field averaged 152 days work in in 1956, and produced 630,000 tons. Developed to capacity these same 6 mines, working full-time could produce 1½ million tons, reducing their costs and increasing their efficiency tremendously. The problem is how to stay alive on part-time work, or, in the alternative how to stabilize the market for summer as well as winter operations. Third, many good mines have been forced to close, and with them has been lost forever a staggering amount of developed coal. The remaining mines must keep their mines in operating condition or lose their developed reserves.

Almost no one doubts but that our country's insatiable appetite for heat energy will eventually require the use of every ounce of every fuel resource it has within its borders or can get elsewhere—including all of Colorado's and the West's immense deposits of coal. How to preserve and prosper such coal mine operations as still remain in Colorado and the Western States, and most quickly bring about a desirable growth and greater exploitation of the substantial coal resources available is a difficult question to answer. Your committee is to be highly commended for undertaking to focus thinking and action in this direction, and the coal industry in Colorado and the West will be pleased to cooperate in any way possible.

In the electric power generating industry lies one of the greatest hopes of the coal industry. Perhaps something might be done to encourage the power companies and REA plants to step up the complete retirement of natural gas as their boiler fuel in favor of coal. Most of them expect and plan to have to do this eventually. Limiting the use of natural gas under boilers by all such plants in coal producing areas might well be a conservation measure in the best interests of the public and national welfare. Certainly year-round use of coal by powerplants would help stabilize existing coal operations.

There might also be some way to encourage powerplants to consider extraction of the volatile byproducts of coal and the use of the resultant char for boiler fuel. The sale of the byproducts would tend to reduce fuel costs. Any agency which might pioneer in this field would be greatly helped by some tieup with the power industry, due to the necessity for a market for char.

The conversion of coal to liquid and gas form by hydrogenation or other processes is, of course, a probable eventual devolopment. Perhaps all has been done researchwise that can be done along these lines. If not, further research should be fostered, and a beginning encouraged in this potentially great development.

Finally, during these last 30 years, industry leaders, Government installation officials, and others, have come to look with disfavor on coal as a fuel at their plants. New plants go on on gas, old plants convert, if and when they can. The coal industry can, and does often show that coal is less expensive, will always be available in sufficient quantity at low cost, and that coal should be adopted at the institution or plant. But there is a lack of acceptance—a determination that conversion or adoption of gas fuel is the thing to do. If anything can be done it should be done to encourage thoughtful and fair consideration of coal consumed in modern automatic, smokeless, equipment, and to encourage acceptance of the certainty of the economy and relatively low cost of coal and its availability over the long pull.

Northern Colorado Field coals and other western coals must not lose their remaining markets, and be allowed to go completely out of business. The na-

tional welfare requires the survival of this nucleus of modern coal mines. Heavy industry still using coal must be held on coal, modernizing their coal plants, where necessary, instead of converting to gas. A trend of conversion from gas back to modern coal plants should be initiated and maintained. And this can all be accomplished, based upon sound long-range economics, with little if any sacrifice in convenience, and with no trace of subsidy. Your committee on coal research might well spark a revival of an attitude of acceptance of coal as a boiler fuel worthy in every respect of first consideration in the areas where it is abundant.

Mr. EDMONDSON. If you care to highlight any of the points, we will be glad to do that.

Mr. BRIDWELL. Thank you, Mr. Chairman. That is what I would like to do.

I would like to reiterate what has already been said, that the major cause of coal's decline in Colorado lies basically in its competition with natural gas. Natural gas came into Colorado in 1929 from the Texas fields and had been augmented by lines from the Kansas fields, and is now just beginning to receive gas from the San Juan Basin up through Rock Springs and down through Wyoming into the Denver area.

It has seemed that this natural gas has been able to displace coal in Colorado since 1927 in any fuel market that it desired to take.

In Denver practically 100 percent of the homes are heated by natural gas, and all of the other communities in Colorado that are served by gas have just about the same situation.

In Denver it is almost a hundred percent of the commercial market, the small ones, the laundries, the small commercial consumers that are served by natural gas.

I agree with what has already been said here that the coal industry can write that market off, the domestic market and small commercial, off completely. It is gone forever. If it is not always taken care of by natural gas, there will be some other form of heat engine used to heat our homes and small industries. Perhaps electricity, which would bring it back to coal as a primary source, but not directly.

I would like to reiterate or emphasize, perhaps, just a few things that I think might be done by this committee to help the coal industry.

I might start that off by highlighting some of the problems once more, at least those problems that have not already been touched upon.

First, since the coal industry is losing its domestic and small commercial markets almost entirely, the industry becomes dependent almost completely upon the industrial market. If we include in the industrial market the electric utility market, the coal industry is going to be dependent almost entirely upon that market which consumes the fine or slack coal, traditionally the lowest priced of the prepared sizes of coal. The problem then resolves itself to how to stay alive on this low realization coal. Either that, or in the alternative, how to reduce mining costs, to such an extent that survival is possible.

Second, the industrial markets as we have them in Colorado, the electric power market, the Great Western Sugar Co., the Government installations that still burn coal, like Fairchild, Lowry Field, and the Federal Center that still burns coal at least to a certain extent buy their coal in the wintertime. They begin taking coal in September or October and are through taking coal in March.

That brings up the second problem—that all of these markets that are remaining for coal in Colorado are highly seasonal. The power

companies burn gas all summer. There is no need for coal in the Government installations in the summertime. Coal is merely a standby in the production of electric power in most of these plants you heard about from Mr. Sargent.

So the problem facing the coal industry is how to stay alive on part-time work when the mines only work a hundred or a hundred and fifty days out of the year, and the problem is how to keep alive on that kind of business.

Or, in the alternative, how can we stabilize the markets so that it will continue to some extent during the summer months.

Third, you have heard a great deal of testimony today about the large number of mines that have closed down. That brings up the third problem, which is the remaining mines are the best mines, they are the lowest cost mines left in the State. The operators have been able to mechanize and get their production costs down as low as possible. The larger mines that remain are the ones that have been able to stand the competition up to this point. They are the lowest-cost mines, and their problem is how to keep their mines operating so as not to lose their development.

You have heard testimony today to the effect that when a mine closes down, caving and so forth sets in and they lose the mine. These remaining operators now are faced with the problem of keeping their mine operating at least to a sufficient extent to keep from losing the reserves in the mines they have developed.

The ones that are closed, the higher-cost mines that have already been forced out, are done. There is not anything that can be done about them.

The mines remaining have a tremendous capacity to increase production. They are trying to live on part time, and they could increase and can still increase if they are needed, if they can just keep their mine operating in the meantime.

How to bring relief immediately is an extremely difficult question, and your committee is to be highly commended for undertaking to focus the thinking of the country and of the Congress on this highly important problem—how to keep the industry, how to bring relief to the industry in order to keep what we have left from disappearing completely.

Perhaps some of these suggestions for relief that I am going to make have already been made in one form or another, but just to make sure, I would like to take just a minute to emphasize them.

It has been pointed out that in the electric power generating industry lies the principal hopes of the coal industry in Colorado. Most of these plants are designed so that they can burn coal a hundred percent. Their design is basically on coal. Perhaps something might be done by your committee to encourage the power companies and the REA plants that are being built and developed to step up their complete retirement and natural gas so that the market can be stabilized during the summer months.

These companies, it seems to me, eventually will have to retire natural gas in their powerplants.

Mr. EDMONDSON. Can you suggest what might be done to do that?

Mr. BRIDWELL. The only suggestion we have been able to come up with has already been mentioned, that is, conservation and natural

gas for higher use than burning under the boilers to run turbines for electric powerplants.

Mr. EDMONDSON. Boiling it down to just fundamentals, would you mean by that for Congress to come in and say that you shall not burn this fuel for a certain purpose?

Mr. BRIDWELL. We would even accept that; yes.

Mr. EDMONDSON. We just wondered how do you expect us to do it when your governing bodies right in your own neighborhood, having this coal right under them, will not come out and make that kind of an effort for their own immediate use, for their own installation.

How could we tell a city government, for example, "You shall not burn anything but coal in your installations," when that city government has elected, having coal right in its own back yard, to use something else?

Mr. BRIDWELL. It may seem farfetched or impossible of execution, but the Federal Government has undertaken some regulation of natural gas, as far as distribution and use; has it not?

Mr. EDMONDSON. Yes, sir. But most of the force now being exerted upon Congress is in the direction of relaxing that regulation rather than increasing it, and we have the very strong recommendation of the President on that score now before us for consideration. In other words, less legislation rather than more.

Mr. BRIDWELL. It would seem to me that there might be something done by the committee to encourage the heavy industry to give consideration to coal.

Mr. EDMONDSON. We are certainly open for suggestion on that score.

Mr. BRIDWELL. What the mechanics of it would be, I do not know. I realize it is a very difficult proposition.

Mr. METCALF. Will the gentleman yield?

Mr. EDMONDSON. I will be glad to yield.

Mr. METCALF. Is not that encouragement going to have to come as a result of something that the Government does to make coal a more competitive product rather than by conservation legislation such as you suggest?

Mr. BRIDWELL. Very likely; yes, sir.

Mr. METCALF. Perhaps the direction of this committee would be to research into more improved methods of burning coal, so that it would be competitive today with natural gas, so that there would be an incentive to return to it as a fuel.

Mr. BRIDWELL. Yes. In the coal industry, of course, their costs could be decreased materially if they could operate 250 days a year instead of 125 to 150.

Mr. METCALF. If an overall research brought out those facts that costs could be reduced, so that the coal industry could go into other utilities and make a sales program such as was described here a little while ago, would not that be a solution rather than to have a complex system of controls?

Mr. BRIDWELL. An arbitrary system of controls?

Mr. METCALF. Yes. Let the natural competitive market make coal a preferred fuel.

Mr. BRIDWELL. Somehow or another, though, the coal industry being composed, as it is, of a number of small operators that are not subject to combination, so that they can sell their product at a low cost, puts them at a competitive disadvantage.

Mr. METCALF. We have had an idea that perhaps combination is what makes products sell at a higher cost; a combination that amounts to a monopoly.

Mr. BRIDWELL. Or, conversely, combination can make a lower cost.

Mr. METCALF. If the operation is too small to be efficient and to supply the needs that a larger combination would supply.

However, again, without natural forces, natural economic forces enter in there? If we can develop means by financing research programs and project, if we can develop means to make coal competitive, then the Government's job will have been done.

Mr. BRIDWELL. What concerns some of us is what is going to happen to the coal industry if we cannot develop those things to make it completely competitive under all circumstances.

Mr. EDMONDSON. That concerns all of us, Mr. Bridwell.

In the interest of getting on to these other witnesses, we are going to ask to sum up what you can in about 2 minutes of what else you want to say, and then we are going to ask, if you have any further suggestions, to submit them to us by letter or memorandum, and we will be very pleased to have them.

Mr. BRIDWELL. If I might have time to mention one other point.

Mr. EDMONDSON. We are going to give you 120 seconds further. Go right ahead.

Mr. BRIDWELL. Finally, I just wondered if there might be something your committee could do to help make for a more favorable climate when we do present our case.

It seems to us—and the coal committee, as you have heard, in every case has tried to present the facts with respect to coal, and we find there is a lack of acceptance. We do the best we can, and employ engineers and prepare brochures, and then it seems that we run into an attitude or lack of acceptance on the part of officials in Government installations and officials with the various plants that are going in which just throws coal out almost arbitrarily, without giving serious, it seems to us, very serious consideration to the use of coal.

Although it seems we will, to our own satisfaction at least, have proved that coal over the long period can do a very economical job, competitive in every respect and in almost a hundred percent of the cases, we still lose the job. Perhaps this committee can do something.

Mr. EDMONDSON. I think we can assure you the committee not only can be helpful in that regard but intends to be helpful in that regard. One thing we intend to do is to ask the Department of Defense whether it meant what it said in this memorandum or has had a new policy.

Mr. BRIDWELL. I do not know whether that has been changed or not.

I will close by thanking the committee for coming out here to Colorado and having the patience and taking the time to listen to us.

We do need help right now and not 15 or 20 years from now, when most of us are gone. We think the situation is critical. We need help immediately. We can use the help for long-range also, but we especially need the help now.

Mr. EDMONSON. Thank you very much, and we are becoming increasingly aware on that too, sir.

I think on the question of patience, you gentlemen who have been waiting around this long to testify rate just as high as the members of this committee. We appreciate your waiting to testify.

Will you call the next witness?

Mr. CHENOWETH. Mr. Fred Smith, of the research foundation of the Colorado School of Mines.

STATEMENT OF FRED SMITH, RESEARCH FOUNDATION, COLORADO SCHOOL OF MINES

Mr. SMITH. I appreciate the opportunity to testify here, and will be very brief. I would like to say a few words about the coal research.

About 18 months ago we devoted some of our own funds to a project of trying to improve the coking properties of western coal. We applied techniques that are successful with nonferrous metals. As a result, we are able to prepare a product that has very good metallurgical coke characteristics and byproducts of steam coal.

We got a good deal of help from Bill Landers of the Bureau of Mines and Tom Allen.

The point of all of this is I would like to recommend to the committee and to the industry, in general, that all research be pointed toward bringing in techniques and methods and philosophies from other industries.

I am afraid the research will not solve all the coal industry's problems, but the best bet to solve these problems is by bringing in all the techniques that are available.

That is all I have to say.

Mr. EDMONDSON. May I ask you one question regarding the help you have had from the Bureau of Mines and, I think you mentioned, the bituminous coal research.

Mr. SMITH. Tom Allen, the State coal mine inspector.

Mr. EDMONDSON. Have you had any grants or contracts from outside sources to assist you in specific research projects?

Mr. SMITH. We are using our own funds right now.

Mr. EDMONDSON. Have you had in the past, to your knowledge any from any other source?

Mr. SMITH. No, sir; we have had some State funds, but they have been minor.

Mr. EDMONDSON. What percentage of your research work at present is devoted to coal?

Mr. SMITH. Our coal budget over the 18 months has run around $18,000. It has been about $8,000 capital costs and the other $10,000 labor and overhead.

Mr. EDMONDSON. Mr. Metcalf.

Mr. METCALF. No questions.

Mr. EDMONDSON. Mr. Saylor.

Mr. SAYLOR. You say you are with the Research Foundation of the Colorado School of Mines?

Mr. SMITH. With the research foundation.

Mr. SAYLOR. Let's get this straight. In other words, the Colorado School of Mines is a State supported institution, is it not?

Mr. SMITH. Yes; it is. We are a separate nonprofit research organization. We are not connected with the school.

Mr. SAYLOR. Are you located at the same place?

Mr. SMITH. Yes.

Mr. SAYLOR. Who composes your board? Let us put it this way: What does your organization consist of?

Mr. SMITH. Our board consists of various members of industry—Climax Molybdenum, Stearns Rogers, and various other well-known outfits. We are specifically set up to do research work for the mineral industry on a nonprofit basis. We do not employ students, we use full-time engineers for this work.

Mr. SAYLOR. You do it not only for the coal industry but for the ferrous and nonferrous metals?

Mr. SMITH. Yes, sir. We try to stay out of research work in which we are not qualified, such as biologics or physics or electronics.

Mr. SAYLOR. I am interested in your statement that you do not think that research has all of the answers, because to me your own statement does not agree with what you have said, because the angles you have asked us to look into, I think are also research.

Mr. SMITH. Yes. But I think somebody pointed out here that there are two kinds of research—something for the long haul of 20 years and something to save an industry in the immediate future. Whether research can save it within the next 6 months, 5 years, 10 years, those are the points that have to be determined, and research has to be so slanted that it does the job you want it to do.

Mr. SAYLOR. Since you are an organization of the type you have specified, would you recommend to this committee that this research recommended by us would be set up as a separate function of the United States Bureau of Mines?

Mr. SMITH. I would want to consider all of the possibilities before making a recommendation of any kind. I did not come prepared to give a written statement or get into a long discussion. We did not have too much time to prepare too much.

Mr. SAYLOR. Mr. Smith, after all, I am interested in getting the reactions you have, whatever they may be, and I know the committee will be interested. If you have any, I want you to feel free to send them right to us.

Mr. SMITH. I certainly will. I would like to.

Mr. SAYLOR. We will be happy to have them.

Mr. SMITH. Thank you.

Mr. SAYLOR. Because this committee is trying, under the able leadership of our chairman, to let everybody get in and give us every idea. We do not want to exclude anybody.

Mr. SMITH. I think you are doing a good job.

Mr. SAYLOR. That is all.

Mr. EDMONDSON. Mr. Dawson.

Mr. DAWSON. No questions.

Mr. EDMONDSON. Mr. Chenoweth.

Mr. CHENOWETH. I just want to ask one question, Mr. Smith. How old an organization is this research foundation?

Mr. SMITH. We have been in business 5 years.

Mr. CHENOWETH. What is your title?

Mr. SMITH. I am manager of the mining division.

Mr. CHENOWETH. How many employees do you have?

Mr. SMITH. We have 70 full-time employees.

Mr. CHENOWETH. Seventy?

Mr. SMITH. Yes.

Mr. CHENOWETH. All at the Colorado School of Mines?

Mr. SMITH. The research foundation.

Mr. CHENOWETH. All of your work is done in connection with the school of mines?

Mr. SMITH. No, sir. We are separate from the school of mines. We do not teach, but we employ some of the professors as consultants.

Mr. CHENOWETH. Do you have separate buildings?

Mr. SMITH. We have a separate building. We have a separate staff. We have a separate accounting department, entirely separate.

Mr. CHENOWETH. But you do use some of the professors at the school?

Mr. SMITH. Yes.

Mr. CHENOWETH. That is what I want for the record. Thank you.

Mr. Besser, you have been very patient all day. If you wish, we will hear from you now.

STATEMENT OF J. S. BESSER, SALES MANAGER, COLORADO FUEL & IRON CORP., PUEBLO, COLO.

Mr. BESSER. Mr. Chairman and gentlemen of the committee, my name is J. S. Besser. I am sales manager of coal for the Colorado Fuel & Iron Corp. I am vice president of the Colorado-Mexico Coal Operators' Association. I am vice chairman of the Colorado Coal Committee. We are members of Western Coal Operators' Association. I am also a director in the National Coal Association of Washington that has been mentioned here a number of times.

I do not feel I have anything of particular advantage that has not already been said today.

If I may, I would reemphasize the fact that I think it would be very helpful if your committee could try and reactivate some of the Government promises we have had, like helping distressed coal areas by putting out invitations to bid on export coal that were restricted to certain areas so that you had some chance of getting them when you are inside of the United States like we are.

We have demonstrated we could do something on that if they give us such an invitation.

Then, if the Government policy was pushed along that Government facilities would use coal out here wherever they could. But they do not seem to do it.

Regarding research, certainly every forward-looking industry should have some research. On the other hand, there is some research that develops uses for coal in which the amounts required are so small it does not mean anything. I am not an engineer, I am just a peddler of coal. What I am getting at is, as I understand it, here is nylon: Nylon is made of coal, but a nickel's worth of coal would make a hundred pairs of nylons. That does not help the coal industry.

What the coal industry needs is something that will give it tonnage now before it goes under.

As I see it, I do not know how that can be done unless the Government helps out on these two points I have mentioned—the export coal and the Government facilities using coal wherever it was available.

In some instances the engineers of these outside associations, employed by them, have definitely shown coal is cheaper and more avail-

able as fuel, but these chaps in Washington, it does not make any difference to them. The thing is set up for oil anyway.

I have personally talked to some of the ICA in Washington about the export business and I just get brushed off. That is all. You do not get anywhere at all. You do not know what else to do excepting to try, and we have gone and tried, but we are still hung up.

Gentlemen, that is about all I have to say. The rest of it has been said by our other representatives—Mr. Williams, Mr. Bridwell, Mr. Joyce, and these various fellows from the coal-producing counties. I feel I have nothing more to add to that.

Mr. EDMONDSON. Mr. Metcalf, do you have any questions?

Mr. METCALF. No questions.

Mr. EDMONDSON. Mr. Saylor.

Mr. SAYLOR. Mr. Besser, I just want you to know that you are not alone in getting turned down. But you have to develop the Washington attitude—you just have to keep bouncing back. You have to be like the toys your children play with: You may push them over, but they are so weighted they come right back up again. That is what we have got to keep doing down there, and if we keep doing it enough times, someday somebody is going to see the light.

Mr. BESSER. Along that line, I think the Colorado Fuel & Iron set up an office in the city of Washington to facilitate this once before.

Mr. DAWSON. The problem you have on export is strictly one of freight rates, it is not?

Mr. BESSER. Surely.

Mr. DAWSON. As I understood one of the previous witnesses, these bids are open not only to this country, but to other countries?

Mr. BESSER. Yes, sir.

Mr. DAWSON. So it would simply mean the Government would have to give you a subsidy here in this area for the difference between the freight from this point and other points where they might be in a more favorable location?

Mr. BESSER. Yes. But if they do not pay it one way, they will pay it another. The money we get from this is our own Government's money that comes back to us. I do not understand this thing, but I do not think anybody does. But I think it comes out of one pocket and goes in the other.

Mr. SAYLOR. I might have a recommendation. You might get it done if you decided that instead of Colorado Fuel & Iron being an American corporation, to go over to England and incorporate, and probably some of the "one worlders" will take care of you.

Mr. EDMONDSON. Mr. Chenoweth.

Mr. CHENOWETH. How recently have you tried to get some of this export business, Mr. Besser?

Mr. BESSER. We write Washington about every 6 weeks. I was there on January 10, I think, and talked to them back there. I did not have an opportunity to talk to Mr. Chenoweth. He was at the national coal convention reception. But Senator Allott was there and John Carroll was there, and I talked to both of them over in their offices, and we tried to talk to our people that are putting out these bids.

Mr. CHENOWETH. The next time you are down to Washington, come in and see me and talk to me. I do not know that I can do anything, but I will try.

Mr. METCALF. We will all be glad to see you.

Mr. EDMONDSON. I do not know how much bounce back there was in your office dealing with this problem of Government purchases, but you folks, I understand, have something to do with a man named Boustead up there, and he was in my office so often about one project he was interested in that I saw more of him than I did any of my constituents from Oklahoma. I expect there was a good deal of bounce in your organization dealing with this other problem.

Mr. BESSER. That is right.

Mr. EDMONDSON. Thank you very much for your statement. We appreciate it.

Mr. BESSER. Thank you.

Mr. CHENOWETH. Is Mr. Webber or Mr. Snider, of the Southern Colorado Power Co., here?

(No response.)

Mr. CHENOWETH. Then our last witness will be Wr. William S. Landers, of the Bureau of Mines, Denver, Chief of the Branch of Coal Technology.

I personally would like to hear what has been done in Denver in connection with the Denver plant mentioned a time or two.

Mr. EDMONDSON. We are very happy to have you here. We want you to know, for my own part, at least, we consider we have saved the best for the last insofar as substance for this committee on the subject of research is concerned.

We appreciate your patience in abiding with us through this day, and we are willing to sit here and listen as long as you want to talk to us about the problem of research.

STATEMENT OF WILLIAM S. LANDERS, CHIEF, BRANCH OF COAL TECHNOLOGY, BUREAU OF MINES, DENVER, COLO.

Mr. LANDERS. Mr. Chairman and members of the committee, I have been engaged in coal research so long I am afraid I would keep you here all night if I got started on it.

First, I want to apologize for not having a written statement to present to you.

Mr. EDMONDSON. We know how brief your notice was.

Mr. LANDERS. I was informed of the meeting this morning. If the committe desires, I will be glad to prepare a written statement and submit it to you.

Mr. EDMONDSON. We would be very much interested in a synopsis, if you could give it to us, of the projects you have undertaken since you have been here in Denver, the present projects underway, and your evaluation of their merit. (See p. 502.)

Mr. LANDERS. First, let me emphasize something which I understand from the comments made this morning—that coal research can be conducted in at least two different way. One is to approach it in the scientific manner, to obtain details on the properties, constitution of coal.

The second approach, which we have chosen at the Denver Laboratory, is to study the technology and utilization of coal. By that I do not mean to infer, in any sense, that we have no sympathy for the need for the first type of research. We have too small a staff to engage in both types simultaneously.

I might mention the laboratory was started by the late V. F. Parry, mentioned by 1 or 2 previous speakers. He died in December, and I was chosen to succeed him. I had served as his assistant for several years prior to that.

Mr. EDMONDSON. Can you tell us what your staff consists of and about what your budget is for coal research?

Mr. LANDERS. Our staff consists of 24 members. That includes our technical, administrative, clerical, and mechanical personnel. However, 16 members are on Government salary and the remaining 8 are supported by outside funds from industry.

Our operating budget is approximately $160,000 a year. Of this, during fiscal year 1957 we will obtain approximately $83,000 by direct appropriation in addition to $10,000 for coal-mine sampling, which, however, we do not include in our technical budget. The remaining money is obtained from other Government agencies, such as the Atomic Energy Commission for special work, the State Department, and private industry entering into contracts with the Department of the Interior through the Director of the Bureau of Mines.

Actually we get along very nicely on the total amount of money which we receive.

It might be well to mention briefly some of the types of problems we have been engaged upon.

Our principal problem which we have been working on for several years has been drying and low-temperature carbonization of coal. We are in complete agreement with many of the speakers whom we have heard this afternoon in that power probably represents the major future use for coal.

I might qualify my statement from here on, at this point: When I say "we" I am speaking of the Bureau in Denver and not attempting to speak for the Director.

However, the Bureau generally, I believe, feels that power is one of the primary future uses for coal. We look at the generation of power from coal from the purely economic standpoint.

Mr. Parry felt that the only way that coal could supplant gas or capture new markets in the power industry was to demonstrate its ability to produce power cheaper than do the competing fuels, and that is the approach which we have used.

The main impetus for our work on low temperature carbonization of coal came from the Texas Power & Light Co. This company, with plants in central Texas, is in the heart of the gas field. Gas prices have been rising. But at the same time it was known there were large deposits of low-grade lignite in that area. The Texas Power & Light Co. approached the Bureau of Mines for assistance and offered to subsidize or support this type of research.

Mr. Parry, in conjunction with the Bureau of Mines, then developed the Parry process which has been mentioned by several other speakers.

The Parry process, briefly, is merely a means of taking a very low rank fuel, such as lignite, containing 30 to 40 percent moisture, having a low heating value perhaps 6,500 to 7,000 British thermal units, and drying it by rapid, cheap, economical means to produce a higher grade of fuel containing 3 to 4 percent moisture, and having a heating value of approximately 10,000 British thermal units. That is the first step.

The second step is to take this dried lignite and carbonize it in a low temperature unit, a fluidized unit, which is basically, we feel, the cheapest means of obtaining low-cost carbonization.

Upon carbonization, the coal produces what is known as a char, that is, the solid carbon residue, which is an excellent powerplant fuel, and tar.

Now the whole purpose of performing such an operation is to get increased dollar value from the material that has been mined and, consequently, in the case of power companies, lower power costs.

In order to accomplish this the power that has been removed from the coal must pay for the cost of processing the coal, plus the cost of heating value of the coal which is now appearing as tar.

This brings into play some rather involved economics—the cost of coal, the cost of processing the coal, and the value of tar all have to be considered.

All of these factors are known to us except one, and that is the value of the tar. Low temperature tar is a new article of commerce. It has not been produced in large enough quantities to develop markets. Extensive research is being conducted both by the Bureau of Mines and by private industry to establish the value of this tar.

You have heard of Dr. Law's work as reported by Dr. Fisk.

Mr. EDMONDSON. What is the consistency of this tar that goes to power?

Mr. LANDERS. The tar, Mr Chairman, is generally solid at room temperature. However, that is not a very good technical explanation because it will flow when warmed up by steam. It would have perhaps the consistency of tallow, if that would give you a comparison, and could be treated by much the same techniques as used in the tallow industry to make it flow.

Components that are present must be identified, must be studied, and must have market evaluation.

This work is going on, as I stated before, both by Government and by private industry, and we are quite confident that they will be successful, that a sufficiently high value will be assigned to the tar to merit its extraction.

Along this line, I might mention that the Parry process is being used at the Rockdale plant of the Industrial Generating Co., which is a wholly owned subsidiary of the Aluminum Corporation of America and the Texas Power & Light Co.

Two hundred and forty thousands kilowatts of power are being generated at extremely high-load factor, using the dried lignite produced by the method which I have described.

Research is being conducted both there and at the Denver station on carbonization.

Industry is now producing about 6,000 tons of lignite per day. It is a completely new industry which has been established—perhaps I should say it this way: It is an industry which has been dormant a good many years and has been revived healthfully through the use of this process developed by the Bureau of Mines

Mr. EDMONDSON. What was that quantity again?

Mr. LANDERS. Approximately 6,000 tons per day.

Mr. EDMONDSON. Is that of the tar?

Mr. LANDERS. No. That, sir, is the raw lignite mined at the plant. The power is currently being generated from the dried lignite.

The conditions to make char and tar will rest upon the value assigned to the tar The value assigned to the tar, in turn, will be determined very simply. It will be what anybody will pay them for it in the quantities in which they hope to produce it.

Mr. EDMONDSON. Is any of it being marketed at the present?

Mr. LANDERS. It has not been produced in more than tank car lots at any given time. It has not been produced on a continuous basis. It has been produced only for experimental purposes.

In the near future it will go into general production.

As it stands, carbonizing facilities capable of charring one-ninth of the production are available at the plant. The remainder of the carbonizing equipment will be built when the economics are fully established. However, the entire plant is operating on the dried lignite.

The second major problem being studied by the Bureau in Denver is high-temperature carbonization of coal for the production of metallurgical coke. This work is being conducted in cooperation with the three coke producers and steel plants of the West, namely, Colorado Fuel & Iron Corp., at Pueblo; Columbia-Geneva steel division of the United States Steel Corp., at Geneva, Utah; and the Kaiser Steel Corp., at Fontana, Calif.

This is the second year of a cooperative agreement with these concerns. We are studying the effects of various agents on the production of high-temperature coke, with one of the major objectives being to supplant the use of Oklahoma and Arkansas coal in the production of coke, since it is a very expensive coal in the West, and there is a possibility that the local coals may be modified to take their place.

The second thing, of course, is there are not unlimited supplies of low volatile coal in either Arkansas or Oklahoma.

We are also studying variables, such as the effect of bulk density, temperature, and other technical factors on the quality of coke.

The third problem we are currently working on is production of special carbons. This is the type of market Mr. Besser referred to a few moments ago, when he said it was a high value but low quantity market.

We are attempting, in cooperation with various organizations, to produce substitutes for high-priced carbons currently being imported into the area, such substitutes to be produced from local coals.

A possible use for these materials would be in the phosphorus industry of Idaho, or in the aluminum industry as a carbon electrode, or similar application.

We also work on special combustion problems. We are devoting some efforts to the study of combustion problems that might be attendant with the coal-burning gas turbine. We are not actually getting into turbine work yet, but we are setting up these studies of the combustion problem.

Storage has been mentioned several times. That is a problem which we feel we have solved successfully and economically.

The problem first came up in a large way in connection with the storage of lignite being mined at Garrison Dam in North Dakota. Methods were developed, published, and are in use in several industrial applications. Specifically, the Texas Power & Light plant at Rockdale has some 800,000 tons of lignite in standby storage.

In North Dakota between 2 million and 3 million tons are in storage, safely, using the techniques which were developed by the Bureau.

The next phase of our work might be called special handling problems.

The scheme which we have generally proposed for the utilization of coal in powerplants poses some new problems to the industry.

The industry has been obtaining large pieces of coal, perhaps run-of-mine or slack coal, whichever was available, pulverizing them as needed. We propose to process the coal by fluidizing techniques, which means it must be crushed finely before it is processed. It comes out of the units hot. This poses problems of handling around the powerplant, which is somewhat different from the conventional techniques employed today. It also brings up problems of transportation. We are considering these as time becomes available.

Another phase of our work is to study the general economic and utilization trends of coal and other forms of energy in the West. Primarily, of course, we are interested in coal, but we cannot get a complete picture of coal unless we see its relationship to other fuels.

Then, a continuing problem, which has been going on since the time the laboratory was first started, was to establish data on the properties of western coal; attempt to find out some scientific data, some technological data, general information on the properties of coal, which we feel is necessary for the solution both of our problems and those generated in industry.

That, gentlemen, is the very short statement of what we are doing in Denver.

Mr. EDMONDSON. Thank you, Mr. Landers, for a very succinct summary here of what you are doing.

Mr. Metcalf, do you have any questions?

Mr. METCALF. I want to thank you, Mr. Landers, and I will actually look forward to that amplified statement you are going to send in to the committee.

Mr. LANDERS. Thank you, sir. I shall prepare that.

Mr. SAYLOR. I want to congratulate you on your statement. You have told us of some of the work you are doing, and your manner, in listening to you, fascinates me.

I know that you will continue to work up there. I am familiar with some phases of it. I commend you for what you are doing, and I urge you to just keep it up. Because even though some of those things might be only using small quantities, as I have said on other occasions, if you get enough uses of small quantities, the total production will take care of itself.

Mr. LANDERS. That is right.

Mr. SAYLOR. That is all, Mr. Chairman.

Mr. EDMONDSON. Mr. Dawson.

Mr. DAWSON. No questions.

Mr. EDMONDSON. Mr. Chenoweth.

Mr. CHENOWETH. I want to ask one question. I am also very much intrigued by your statement. It is very interesting.

Assuming that the Parry process now is successful in a commercial way, how much is that going to increase the use and consumption of coal?

Mr. LANDERS. As a general figure, approximately 30 percent of the potential heat in the coal—by "potential" I mean the ability of coal to raise steam and generate power—would be converted to these other materials, to tar and oil, which would thus go into the chemical market or into the fuel market as gasoline substitutes. The char then would take the place of whole coal being used to generate power. So it would represent an increase in the ratio of 100 to 70, or approximately a 40-percent increase.

I will have to back up. It would be a straight 30-percent increase in the mining of coal to generate the same quantity of power.

Mr. CHENOWETH. Thirty-percent increase?

Mr. LANDERS. Yes, sir. That is a generalized figure.

Mr. CHENOWETH. It is all in the experimental stage now?

Mr. LANDERS. Yes, sir.

Mr. CHENOWETH. What is the time picture, do you think, on arriving at something definite about the commercial possibilities?

Mr. LANDERS. As I say, it primarily hinges on the value of tar. On the evaluation of tar work has been going on for about 3 years. We expect that the answers will be forthcoming possibly in the next 6 or 8 months. We are not developing those answers in our laboratory. They are being developed by private industry.

The Bureau has just started an extensive program. It will take some time for it to come up with all the answers. That work is at the Morgantown Station. Some work also is being done at Grand Forks, N. Dak., on these tars. We hope in the next 6 months that industry will have the answers.

Mr. CHENOWETH. Is there any conflict or duplication between what you are doing and what the Bureau of Mines is doing at some of its other experimental stations in the East? I recall one just out of Pittsburgh.

Mr. LANDERS. Bruceton. No, sir; I do not believe there is. We work on the noncoking coals primarily, which are found only in the Western United States. Our work on coking coals is specifically on the coals of Colorado and Utah, New Mexico, and Wyoming, which are not available as local problems to the Bureau in Pittsburgh.

Mr. CHENOWETH. You work on the noncoking coals?

Mr. LANDERS. Basically. Most of the coals in the West are noncoking. We, however, do work on coking coals as applied to steel production.

Mr. CHENOWETH. The Parry process does not apply to coking coal, then.

Mr. LANDERS. No, sir. The Parry process relies on taking coal, crushing it, and burning it to fine sizes, and maintaining those fine sizes so you can blow the coal around from spot to spot. Coking coal melts and forms big ones out of little ones, and of course you cannot blow it around.

Mr. CHENOWETH. That would not apply to what we have in Huerfano and Las Animas Counties?

Mr. LANDERS. Huerfano County coal is amenable to processing by this technique, since it is noncoking coal. Las Animas County coals are generally coking, and consequently could not be processed directly without modification in this process.

Mr. DAWSON. Does the Parry process lend itself more beneficially to lignite than it does to bituminous coal?

Mr. LANDERS. The bituminous coals for the most part are coking, and consequently this type of processing is more suited for lignite or subbituminous coals, the noncoking coals. Bituminous coals such as are found in Pennsylvania, for example, would not be suited for direct processing by this method.

Mr. EDMONDSON. Mr. Landers, I want to thank you for the committee, and congratulate the Bureau of Mines on your being with us.

Mr. LANDERS. Thank you.

(Subsequently the following statement was submitted:)

STATEMENT BY W. S. LANDERS, CHIEF, BRANCH OF COAL TECHNOLOGY, BUREAU OF MINES, DENVER, COLO.

In 1937, a Bureau of Mines coal research laboratory was organized at Golden, Colo., in cooperation with the Colorado School of Mines, and under the leadership of the late V. F. Paerry. It was recognized at the time that coal research involved two basic types of study. One type, known as fundamental and basic research, is scientific study for the sake of understanding the workings of nature and may or may not consider possible application of results. On the other hand, applied and development type of research is undertaken to solve specific long- or short-range problems through the practical applications of technology and may include the evolution and perfection of a process or product to some stage short of commercial production. At the time the laboratory was established, it was evident that staff facilities were not available to conduct both types of research simultaneously. A decision was made that the organization could be used best in the applied and development field. Since then, most of our work has been on problems connected directly with industry. It should not be construed, however, that our research problems have been brought to successful completion without the use of basic and fundamental data. We have drawn constantly on data of this type compiled by the other Bureau research laboratories and various governmental and nongovernmental scientific groups to aid us in directing our research studies and to assist us in the interpretation of our experimental data. It is most important that both types of coal research be pursued vigorously if the research product is to prove beneficial to industry.

In this connection, I was requested by a member of the subcommittee to discuss the assignment of coal-research problems to the several laboratories maintained by the Bureau of Mines rather than conducting all coal-research investigations in a central laboratory. In my opinion, the general field of coal research is greatly complicated by the various ranks of coal found in this country. These coal deposits are distributed over wide geographical areas and the properties and problems associated with research on each rank of coal are generally distinct from those pertaining to coals of a different rank. It appears to me that, even if all coal research conducted by the Bureau of Mines were housed at one location, separate groups of specialists would have to be assigned to each rank of fuel to conduct the research programs adequately. While general research on the various problems might best be conducted through laboratories in the major geographical coal-producing areas, there are functions which can be handled more effectively in centralized facilities. The Bureau, through coordination at the Washington, D. C., level, has concentrated certain research activities, such as coal analysis and petrographic examination, at our Pittsburgh, Pa., laboratories to avoid unnecessary duplication in the various field stations, with the result that to the best of my knowledge there is no significant duplication or overlapping of activities between the various coal-research stations of the Bureau of Mines.

Since its inception, the laboratory has been concerned mainly with the drying, low-temperature carbonizing, and handling of low-rank noncoking coals. These coals are abundant in the West and we believe that their major future market is in the production of thermal power and coal chemicals. Many of the coals contain a large percentage of water and have a low heating value. Their low rank makes them susceptible to self heating which complicates the problem of providing safe storage. One of the early investigations undertaken by the new laboratory staff was proper storage of subbituminous coal and

lignite. Through the years these studies on safe storage have been expanded and intensified until the problem of safe storage of large quantities of low-rank coal as reserve or standby fuels at powerplants and similar large industrial plants has been solved successfully by the Bureau. The techniques developed and published have been used in the safe storage of several million tons of raw lignite at Garrison Dam, N. Dak., and in the stockpiling of an 800,000,-ton reserve pile of lignite at Rockdale, Tex.

In cooperation with the University of North Dakota, an investigation and economic study of the Fleissner process for drying low-rank coal with high-pressure steam were started in 1941. These studies showed that American high-moisture coals can be dried successfully to increase the gross heating value of the dried fuel 30 to 50 percent over that of the raw product. Following the successful application of the Fleissner drying process to subbituminous coals, the dried product was effectively processed to yield a high B. t. u. briquet. While the heating value of the briquets was satisfactory, the briquets disintegrated somewhat during burning and under severe weathering conditions.

Studies on the gasification of subbituminous coal and lignite were started in 1944. A small pilot plant was built and techniques were developed that were applied on a larger scale in a commercial-size pilot plant at Grand Forks, N. Dak. In 1949, the station moved from Golden to Denver, Colo. The early investigations in lignite gasification started at Golden have since become an important phase in the research program of the Lignite Experiment Station at Grand Forks, as well as at Denver.

One of the most successful achievements of the Denver station was the development of a flash-drying process adaptable to coals of high-bed moisture content. The Parry process, named after its designer, the late V. F. Parry, has received worldwide attention. This process dries the coal in the entrained and fluidized state and delivers a product that is suitable for pulverized fuel installations without further processing. At present, a 240,000 kilowatt powerplant operated by the Industrial Generating Co. for the Texas Power & Light Co. and the Aluminum Company of America is in operation at Rockdale, Tex., using lignite dried by this process. Approximately 6,000 tons per day of raw Texas lignite is used, thereby resorting to active use a major energy source in the State of Texas.

In cooperation with the Texas Power & Light Co., an investigation was started in 1951 to find an economical way to process Texas lignite so as to remove tar as a byproduct before burning the char for generation of electric power. In this study, a method of drying and carbonizing noncoking coal in the entrained and fluidized state was developed successfully. A carbonizer was installed at the Rockdale plant that is capable of producing char equivalent to one-ninth of the plant generating capacity. This carbonizer and its associated tar recovery string is a prototype unit and is being operated intermittently on an experimental basis to provide tar for research and market studies. The economics of carbonization depend largely upon the value of low-temperature tar. Such tar has not been an article of commerce in this country and extensive research is necessary to establish substantial markets and value. Research of this type is being conducted by the Bureau of Mines at Morgantown, W. Va., and at Grand Forks, N. Dak. It is also being carried out by several of the major tar and chemical producers in this country. One of the major private investigations is being conducted at Battelle Memorial Institute and is financially supported by Texas Power & Light Co. and Aluminum Company of America. We hope that conclusive results of such research will be available in the near future to establish the general economic feasibility of low-temperature tar production. Until such information is available, the carbonizer at Texas will continue to operate intermittently as an experimental and developmental unit, producing tar for study.

Other research projects on the carbonization and use of western coals have been conducted in cooperation with the Union Pacific Coal Co. and the Natural Resource Board of the State of Wyoming.

Another problem under active investigation is the production of improved metallurgical coke from our western coking coals. This study is being conducted in cooperation with the three coke and steel producers in the West, Colorado Fuel & Iron Corp., Pueblo, Colo., Columbia-Geneva Steel Division of United States Steel Corporation, Geneva, Utah, and Kaiser Steel Corp., Fontana, Calif., and the Research Foundation of the Colorado School of Mines. Under terms of the cooperative agreements, the Bureau at Denver is studying the effect of several

variables on the quality of coke, such as bulk density, size of coal, and time and temperature of carbonization. We also intend to study substitutes for the expensive low-volatile coals currently being used as blending materials in the western coke plants. In addition to the cost of such blending coals, there is some concern among the coke producers regarding the adequacy of reserves.

In cooperation with the Kemmerer Coal Co., Kemmerer, Wyo., and the Natural Resources Research Institute at the University of Wyoming, Laramie, Wyo., a study is being made at the Denver station of the production of special carbons for electrochemical and metallurgical use. Various western industries, like the phosphorus industry in Idaho, require carbons possessing special composition or physical properties. The research work is directed toward the production of such materials from the cheap readily available noncoking coal of the West. A high-volume market is not expected to develop for these carbons, but it can become economically attractive because of the high cost of the carbons now being used.

We are also conducting work on special combustion problems. A study has been started recently on the problems associated with the burning of ultrafine coal for the coal-burning gas turbine, and we are concerned also with the combustion of raw or processed fuel in cement plants where a high-flame temperature is required.

The use of the processed subbituminous coal or lignite as powerplant fuel has generated several auxiliary problems in the handling of large quantities of such fuel. The techniques must be somewhat different than in the conventional pulverized coal plant and work is being conducted on methods of improved handling and preparation.

Another continuing study is on the properties of western coals. As our research progresses, it frequently becomes apparent that insufficient data are available on the basic properties of these coals and we must conduct studies in our laboratory to obtain them.

The work at the Branch of Coal Technology at Denver is conducted by a total staff of 22, which includes all technical, clerical, administrative, and mechanical employees. Fifteen of these are civil service and the remaining 7 are cooperative employees whose salaries are paid, at present, by the Texas Power & Light Co. Our operating budget, at present, is about $160,000 a year. Of this, $83,150 is supplied through direct appropriation and the remainder is obtained from private cooperating organizations and other Government agencies. An additional $9,450 is allocated to our branch to support field coal-sampling activities.

Mr. EDMONDSON. I would like to take this opportunity to express my thanks to the witnesses, and to the people who have assisted the witnesses in presenting this information. We have heard 28 witnesses, and we have, I think, obtained the best overall picture of a large area that we have obtained in any hearings thus far held.

I am grateful to my colleague from Colorado, Judge Chenoweth, and my colleague from Utah, Mr. Dawson, Mr. Aspinall, also of Colorado, and Congressman Thomson of Wyoming in connection with his cooperation with this hearing. I think you have given us a good deal to chew on here, and we appreciate very much the material that has been made available to the committee.

Mr. Metcalf, do you have any concluding remarks?

Mr. METCALF. No.

Mr. EDMONDSON. Mr. Saylor.

Mr. SAYLOR. I would just like to join in your comments, and to add also our thanks to the mayor, the council of the city of Pueblo, and the citizens for having made this room available to us for holding these hearings, here.

Mr. EDMONDSON. Mr. Dawson?

Mr. DAWSON. I would simply like to say that when we come to finding solutions to these problems you men would put yourselves in our position, and see if you could write a report on how to solve these problems.

Mr. EDMONDSON. Mr. Chenoweth.

Mr. CHENOWETH. Thank you.

Mr. EDMONDSON. We will let you have the last word in your own backyard.

Mr. CHENOWETH. I certainly would be remiss if I did not again thank all of those who cooperated so splendidly in making this hearing possible—Mr. Williams, Mr. Hair, all of the Colorado Fuel & Iron people. I see Mr. Thomson of the chamber of commerce who handled many of the details. We are deeply grateful to all.

I feel, Ed, we have had a very fine hearing today, and we have certainly obtained much valuable information.

I want to thank you again for coming to Pueblo and to southern Colorado.

I am disappointed that we cannot spend another day in Colorado. I am particularly disappointed that we cannot go down to Trinidad to see the Allen mine. I have been bragging on the Allen mine for a long time now as the finest mechanized mine in the world. I hope perhaps we can get this committee out here some other time, and get down to see this mine.

I am also disappointed we did not get out to the steel works today, and see firsthand some of the things they are doing there.

Thank you again for coming.

Mr. EDMONDSON. The committee will stand adjourned.

(Whereupon, at 6:30 p. m., the subcommittee adjourned.)

COAL

TUESDAY, MARCH 26, 1957

HOUSE OF REPRESENTATIVES,
SPECIAL SUBCOMMITTEE ON COAL RESEARCH,
OF THE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
Washington, D. C.

The special subcommittee met, pursuant to call, at 10:15 a. m., in the committee room, New House Office Building, Hon. Ed Edmondson (chairman of the subcommittee) presiding.

Mr. EDMONDSON. The Subcommittee on Coal Research of the House Committee on Interior and Insular Affairs will come to order.

Before we hear the first witness here this morning, I want to take this opportunity to express the subcommittee's deep appreciation to the industry and to related industries for the splendid cooperation which we have had in the field. The presence and the participation of members of the National Coal Association in particular, the Association of American Railroads, and of the United Mine Workers at the different field hearings which we have held have been a tremendous help to this committee. I personally have never had the opportunity to participate in a series of hearings in which there has been finer cooperation from an industry or from a group that is interested in legislation than we have had in these different field hearings. I want to express my deep appreciation to those people who have been cooperative and helpful to the subcommittee in this way.

I am hopeful that we will hear in the next week from several other areas of the country which we have not had the opportunity to visit, but where we have extended invitations to file statements with the committee, giving a report on local conditions.

We have reached the stage in the hearings where the budget of the full Committee on Interior for this particular subcommittee's field activities has pretty well been expended, and if we are going to be across the board on this economy operation in the Congress, I think that activities of the committees of Congress are a legitimate place for that policy also.

So if it is possible to cover the recommendations of the industry here this morning, and to hear from the representatives of the Association of American Railroads and from the Bureau of Mines, we are going to try to complete this series of hearings this morning, with the understanding that statements will be accepted from other sections of the country that we have not found it possible to visit, if they are received within the next week.

I want to take this opportunity to express my personal appreciation to the six other members of this subcommittee for their faithfulness in making these field hearings with us, and attendance at committee

meetings. We are the victims of misfortune to a certain extent this morning in our meeting, by reason of the fact that several of our members have found it physically impossible to be here, but we have had, I think, a very fine attendance from the subcommittee up to this point. I have appreciated very much the cooperation of the members of the subcommittee.

We have scheduled this morning witnesses from the Association of American Railroads, Mr. William M. Moloney—may I ask if Mr. Moloney is present?

We also have Mr. Ankeny, Mr. Perry, and Mr. Corgan from the Bureau of Mines, whom we will ask to appear jointly; and I understand Mr. T. Reed Scollon, Director of the Division of Bituminous Coal, is also present from the Bureau of Mines. We also have scheduled Mr. Harry La Viers who I understand has had a little difficulty traveling in here, and has sent a statement up to be presented by Mr. Don Sullivan of the National Coal Association.

Are there any comments that any members of the committee would like to make before we call the first witness?

If not, then we will ask Mr. William M. Moloney, general attorney of the American Association of Railroads, to step forward. If he has anyone from the association he would like to have with him as he testifies, we would be glad to have him.

Mr. MOLONEY. I would like to have Mr. Megee, please.

Mr. EDMONDSON. Mr. Moloney, we are very pleased to have you here.

I want to reiterate the appreciation already stated of this committee to your organization for the representation which we had from railroads across the country in these field hearings.

STATEMENT OF WILLIAM M. MOLONEY, GENERAL ATTORNEY, ASSOCIATION OF AMERICAN RAILROADS, WASHINGTON, D. C.; ACCOMPANIED BY CALEB R. MEGEE, VICE CHAIRMAN, CAR SERVICE DIVISION, ASSOCIATION OF AMERICAN RAILROADS

Mr. MOLONEY. We appreciate that statement, Mr. Chairman, and we were delighted to cooperate in the holding of the hearings that this committee has engaged in.

Before I make my statement, I believe that at 1 or 2 of those hearings certain members of your committee, who I believe are not present today, expressed interest in certain matters, and said that they might ask questions at the Washington hearing when I appeared. To the extent that I am able, upon the conclusion of my statement, I will be delighted to answer any questions that might be forthcom-

Mr. EDMONDSON. Fine.

Mr. MOLONEY. My name is William M. Moloney and I am general attorney of the Association of American Railroads. I would like first to express my appreciation for the opportunity to make the following statement, which statement is submitted on behalf of the railroad industry as a whole.

House Resolution 400 authorizes and directs this committee to investigate and report upon the feasibility of certain enumerated matters looking toward establishment of a research program with respect to the coal industry. The railroad industry believes that an

important task has been given this committee and wishes to cooperate to the fullest extent in its investigation conducted pursuant to House Resolution 400.

While coal is probably the oldest known major fuel source of energy, we believe that even today it offers a fertile field for research and further development of new and increased uses of coal and its derivatives. There are numerous fields of research that might be explored through such a cooperative research program as this committee has for the subject of this investigation. On the other hand, there are certain fields of research which properly should be left to the particular industries directly affected and should be carried on under their own individual programs.

In expressing our approval of the general purpose of House Resolution 400, I should like to discuss briefly some of the contributions that the railroad industry has already made in research within and development of the coal industry.

The coal-carrying railroads are fully aware of the importance of coal traffic to their lines and for many years have been interested and have participated in research programs looking toward the development of coal reserves, greater efficiency in coal-mining operations, development of new markets, and in general to the strengthening of coal's competitive position with respect to the total energy requirements of the Nation.

In the early history of both the coal and railroad industries, the opening and development of many coalfields may be said to have resulted from the joint efforts of both industries. Since those early days, coal and the railroads have found a bond of common interest in the progress of their respective industries. In most recent years and today, certain coal-carrying railroads are cooperating with the coal industry through both financial aid and personnel assistance in coal research programs.

Bituminous Coal Research is an organization supported by members of the coal industry, coal-carrying railroads, equipment manufacturers, electric utilities, and chemical companies. It conducts research into coal and its uses on a national scale. In addition to rendering financial aid and assistance, railroad officials have served as directors of that agency and have headed and served on important committees along with representatives of some of the major coal-producing companies in carrying out its research purposes.

The Mining Development Committee is supported principally by members of the coal industry, coal-carrying railroads and railroad-owned land companies. Its objectives are the development of better methods of mining, processing, and handling coal at the mine site. Some coal-carrying railroads have rendered financial aid and have actively participated in the program of this committee.

The Locomotive Development Committee was organized by certain coal-carrying railroads and certain large coal producers. One of the locomotive manufacturers has now joined that committee in an effort to perfect a coal-gas railroad locomotive.

A laboratory for conducting basic research with respect to coal and its uses was established at Carnegie Tech and some of the coal-carrying railroads rendered financial aid for many years to keep this project going. In addition to financial assistance to the laboratory, railroad

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personnel served on the Carnegie Tech Coal Laboratory Technical Advisory Committee. We consider it unfortunate that this laboratory was discontinued since the type of work done on basic research in carbonization of coal at the Carnegie Tech laboratory was of great importance to the coal industry.

Further evidence of this cooperative effort is found in the Coal Producers Committee for Smoke Abatement, in which several coal-carrying railroads have participated, not only financially but also through supplying competent fuel engineering personnel.

The efforts of the railroads to promote the best interests of the coal industry have not been confined to cooperative efforts such as above described. On the contrary, the railroads themselves have conducted marketing, advertising, and educational programs. Planned advertising, featuring the desirability and economy of coal, has been run in national magazines, trade publications, metropolitan and local newspapers, and also distributed by direct mail to actual and prospective consumers. Brochures and pamphlets about the coal industry have been widely circulated by the railroads, while moving pictures in color, produced by the railroads, featuring coal, have been given nationwide showings in schools, colleges, civic clubs, chambers of commerce, and like organizations.

In the early 1930's two of the large coal-carrying railroads established their own residential stoker laboratories and conducted extensive tests on domestic stokers, thus rendering valuable assistance to the stoker and coal industries at a time when domestic stokers were in their early stages.

In the late 1920's and early 1930's two coal-carrying railroads pioneered another field by establishing their own coal bureaus at strategic points throughout the United States to help the coal operators on their lines enlarge the market for their coal. These organizations are continuing today and are manned by fuel engineers well versed in the production, preparation, and utilization of coal. We believe it safe to say that these organizations have been and are today extremely helpful to the producers, sellers, and consumers of coal for domestic heating as well as for varying industrial uses.

In this connection, I cannot help but comment upon the press release of the National Coal Association, dated September 30, 1956, in which it was announced that the Bituminous Coal Institute was establishing a marketing program and as a part of such program would render engineering assistance through 12 district offices, staffed by qualified engineers, with a view to promoting the most efficient and economical utilization of bituminous coal. The similarity between such a program and the coal bureaus established by the railroads in the twenties and thirties, as I have above described, is quite striking.

With the background I have described, our interest in the activities of this committee should be most understandable. With all that has been done, there is still need for a more extensive research program. Coal is available in large quantities in many parts of our country and is being commercially mined in over 20 of our 48 States. Its production and use give livelihood to thousands of persons in numerous communities. But not enough is known about the coal reserves of this country, recoverable tonnage, extent of fields, quality of reserves, problems involved in recovery and the like. Additional research is

needed in the mining, preparation, and utilization of coal. New uses for coal and its derivatives should be developed.

In summary, and without commitment at this time, the railroads look with favor upon the broad purposes of House Resolution 400. Should a cooperative research program be ultimately initiated, the railroads believe that such a program would best be directed and administered under the control of the participating or cooperating industries, with assistance from the Federal Government.

The railroads do not believe that such a research program should include research with respect to competitive forms of transporting coal to markets. We do not believe that Federal or State funds should be spent for such research, nor should any one form of transportation be asked to contribute to a fund that would be used for such purposes. This type of research should be carried on by the respective forms of transportation themselves and by those industries whose interests might lie in the encouragement of one form of transportation as against another.

It is one thing for public funds and contributions to be spent in the common interest for research with respect to the conservation, development and utilization of natural resources in this country. It is another and completely different matter for public funds and contributions to be utilized so as to prefer one form of transportation over another or to foster and develop one at the expense of another.

The bond of common interest which has existed between the coal and railroad industries in matters such as this should not be jeopardized in this instance by including competitive transportation within the scope of a cooperative research program.

Mr. EDMONDSON. Does that complete your statement?

Mr. MOLONEY. Mr. Chairman, that completes my general statement and, as I said, I will be pleased to attempt to answer any questions that members of the committee may care to ask.

Mr. EDMONDSON. For the record, Mr. Moloney, would you identify Mr. Megee a little further for us now?

Mr. MOLONEY. May I ask Mr. Megee to identify himself on the record?

Mr. EDMONDSON. All right.

Mr. MEGEE. My name is Caleb R. Megee. I am vice chairman of the car service division, Association of American Railroads. I have held that position for the past 10 years.

Mr. EDMONDSON. I think you are here to answer a particular line of questions that I am sure will be presented by the committee.

Mr. Udall, do you have any questions?

Mr. UDALL. No questions.

Mr. EDMONDSON. Mr. Saylor.

Mr. SAYLOR. Mr. Moloney, the questions I am going to ask you may be rather soul searching, in view of the statement that you have made here. I cannot believe some of them myself, but I would like to get your thinking.

Suppose that a group was established to conduct research by this committee, and as a result of that research they found that transportation in its present form was one of the most wasteful ways of using energy, even though it has been a historic bond between the railroads and the coal companies. Would you say there was absolutely no basis for any further investigation?

Mr. MOLONEY. Mr. Congressman, no; we would not say that there would be no reason for any further investigation. However, we in the railroad industry do feel that the question you have raised, or the point that you make about transportation being one of the most wasteful uses of energy—we have no fear that such determination would ever be made with respect to railroad transportation. On the contrary, we think that, as far as fuel consumption, manpower consumption, if that be considered a resource of this country, or an energy of this country, that in railroad transportation we have no fear that such determination would be made.

Mr. SAYLOR. So that if a committee or a research group would begin to investigate the transportation phase of our energy, the railroads would have no objection?

Mr. MOLONEY. I possibly misunderstood your question. I thought the decision would be made that the transportation should be investigated. I said we would have no fear of such decision. We would take the position that investigation of transportation should not fall within the province of this committee, this committee having for its purpose, or the organization that this committee might recommend having for its purpose, the utilization or conservation of the natural resources of this country in determining how and in what manner those resources may be better utilized and better conserved.

Mr. SAYLOR. Then you feel, representing the railroads, that transportation is not a problem of coal research?

Mr. MOLONEY. We think that transportation is a problem to this extent: That the field of transportation, the means and methods by which the coal will be transported from mine to market, that that is not a field in which public moneys should be spent in order to prefer one form of transportation against another.

For instance, we feel, as far as waterways are concerned now, that coal moving on the waterways already enjoys the benefit of public expenditures. We think it would go beyond the realm of reasonableness to expect the railroad industry to contribute its money to a fund that was going to be spent to determine or to devise new methods of transportation. We think, likewise, to call upon any other transportation industry to put its money into such a fund would be a little bit more than reasonable.

Mr. SAYLOR. That is strange thinking, I am afraid, Mr. Moloney, in view of the fact that historically the railroads were one of those that were really favored by our country.

Mr. MOLONEY. Yes, sir; historically the railroads were really favored by this country. I assume you have in mind the land grants?

Mr. SAYLOR. That is right.

Mr. MOLONEY. I think, also, that same history reveals that the railroad industry is probably the only industry that has been so favored, and has been found by the Interstate Commerce Commission and by Congress itself to have repaid in substance every dime of the land grant, to the extent that Congress saw fit to repeal such statutes, and, in effect, to mark the bill as having been paid.

Mr. DAWSON. Will the gentleman yield?

Mr. SAYLOR. Yes.

Mr. DAWSON. Will you elaborate on that? How do you mean the railroads have repaid the Government for the land grants?

Mr. MOLONEY. The lang-grant situation was, if you please, not an outright gift. It had strings attached to it, and it required the land-grant railroads to haul Government freight at rates less than the commercial rates. So that the Government through the land-grant rates received the benefit of untold millions of dollars of transportation. As I am sure members of the committee know, that was gone into very thoroughly, and submissions were made to the Congress, and the Congress saw fit to repeal the land-grant statute as no longer requiring the land-grant railroads to perform that transportation at those reduced rates.

Mr. SAYLOR. The next question we have has to do with the problem of railroad cars. From time to time up in my district I felt I worked for the railroad companies, for the simple reason that every coal mine in my district would call and want to know why they could not get coal cars to haul the coal that they had ordered. Now what is the position of the railroad companies with regard to coal hoppers for hauling coal? Is there, in the opinion of the railroad industry, a sufficient number of cars?

Mr. MOLONEY. At the present time we feel there is a sufficient number of cars.

Mr. SAYLOR. If there is sufficient number of cars, why do mine operators have difficulty getting them?

Mr. MOLONEY. Let me give you some recent figures on that, if I may, please.

The most recent figure that I have available is the week ended March 16, which I think is a rather current figure.

During the week ended March 16, 1957, revenue carloadings of coal totaled 140,731 carloads. During that same week for 1956, revenue carloadings of coal total 124,984, or roughly 16,000 more carloads in the week ended March 16, 1957, than in the same week of the previous year.

The reported car shortages being hopper cars—and that includes hopper cars not only for coal loading, but for any other loading in hopper cars—the reported shortage for the week ended March 16, 1957, was 51 cars. So that, taking those two periods of time—and, as I say, they are the most recent figures that I have available—during this week in 1957 we handled 16,000 more carloads than we handled in the prior year, and there was only a reported shortage of 51 hopper cars for all hopper loading.

Mr. SAYLOR. Does that include all coal mines, both captive and free mines?

Mr. MOLONEY. It does.

Mr. SAYLOR. Can you tell this committee where or how many railroad cars or hopper cars have been placed in operations by the railroads in the past year?

Mr. MOLONEY. Yes, sir; in fact, if I may, please, I would like to talk about the last 2 years.

Mr. SAYLOR. That is perfectly all right.

Mr. MOLONEY. During the last 26 months—that would be the entire calendar year of 1955 and the entire calendar year of 1956, and the months of January and February 1957—the class 1 railroads in this country have actually installed or placed in the car fleet 22,545 open hopper cars. Now, during that period of time, the average price of a

hopper car was approximately $8,000. So the class 1 railroads in the past 26 months have installed in their fleet, 22,545 hopper cars at an estimated cost, based on that $8,000 per car, of $180,360,000.

In addition to having placed those twenty-two-some-odd-thousand cars in the fleet, during the same 26 months' period, the class 1 railroads have committed themselves on the order book for an additional 38,822 cars. The order book stood at that number at the end of February of this year. That is at an estimated price of $8,000 per car, so that order book represents commitments for hopper cars alone totaling $310,576,000.

I would like to summarize this way: That in the last 26 months the railroads have either actually spent or have committed themselves on order books to spend on hopper cars alone, $490 million, or roughly one-half billion dollars, on hopper cars alone.

I think that the committee should also be interested in the fact that this expenditure that was made and committed of half a billion dollars has been made by an industry that for the 10 years after World War II earned on the average per year 3¾ percent on net investment, and for the 2 years that I am talking about earned only 4.22 percent on net investment in 1955 and only 3.95 on net investment in 1956. And yet——

Mr. EDMONDSON. Will the gentleman yield?

Mr. SAYLOR. Yes.

Mr. EDMONDSON. I think that is a remarkable record of investment in this particular type of equipment.

May I ask the gentleman to get a little clearer picture on how that pertains to the coal industry, what percentage of use of these cars is devoted to hauling coal? Can you tell us that?

(Discussion off the record.)

Mr. EDMONDSON. I realize it may be a rough curbstone opinion on the subject, but if you can give us a general idea within 5 or 10 percentage points over a period of time, it would be helpful.

Mr. MEGEE. As of March 1, we had a serviceable ownership of 488,000, and if you were to use the 140,000 loaded for the week of March 16, and a rough turn-around, we figure, of about 2 weeks, you would have 280,000 cars or thereabouts, tied up in coal loading. Offhand, a rough figure might well be 60 percent of the ownership. It possibly would be subject to some slight change. That is merely a rough estimate without any premeditated thought.

Mr. MOLONEY. I would like to, if I may, please, add one more thought to this answer that I have given about the car supply and what the railroad industry has done.

I would like to point out that by June of 1957, June of this year, the railroad industry will have increased on the basis of the way deliveries are now running—and by the way, in the first few months of 1957 we have taken delivery, actual delivery of 4,517 hopper cars in 2 months—at the rate that the order book stands, and deliveries are running, by the middle of this year we will have augmented our hopper car fleet by a net 15,000 cars. By the end of 1957——

Mr. SAYLOR. That is for 1957?

Mr. MOLONEY. That is June, midyear of 1957. By the end of 1957, both by the receipt of new installations and the maintenance of the low back-order ratio that we are maintaining, by the end of 1957 we

will have augmented our serviceable fleet of hoppers by about 30,000 cars.

To illustrate the importance of that, that means at the end of 1957 we will have in our serviceable hopper-car fleet, more cars than we had in the year 1947 when bituminous coal production was 630 million tons. Production in 1956 was 500 million tons. So, in effect, if that production stays the same, we would have a hopper-car fleet greater than when bituminous coal produced 130 million tons more.

So we feel that we are doing everything within reason. In fact, more. I doubt if there is a single industry with the earning record of the railroads over the postwar years that would spend one-half billion dollars for one type of equipment in its business. We think it is a marvelous record insofar as the circumstances permit that we are building this hopper fleet. By the way, it represents about one-third of our entire freight-car fleet.

To show you that we are maintaining that relationship on the order book today, our orders for hopper cars represent about 33 percent of total orders.

Mr. SAYLOR. Let me ask you this question, Mr. Moloney: In this past 26 months, how many cars have you taken out of operation?

Mr. MOLONEY. From January 1, 1956, to January 1, 1957, our serviceable fleet increased by 8,400 cars. That is, hopper cars.

I think it should also be kept in mind that during 1955 the railroads ordered 45,887 hopper cars. But we all know that steel was short. We all know in 1956 steel was short. We know that the car manufacturers have only a certain capacity. If we get 30,000 hopper cars a year from them, that is a rather remarkable delivery. So this thing does not lie entirely within our control.

As far as the orders are concerned, we are doing everything possible. In fact, we think we are doing very well, if I may pat ourselves on the back.

But, to answer your question, we had a net increase in the fleet—you can see, since we had 45,887 cars on order, if we had gotten anywhere near the rate of delivery we are now getting of 4,500 cars in a period of 60 days, that our fleet increase would have been much greater, of course.

Mr. SAYLOR. I think you have taken us back in your figures—am I correct—to January 1956 and January 1, 1957, when you said you had a net increase of 8,400 cars.

Mr. MOLONEY. Yes.

Mr. SAYLOR. Since you gave us figures before for 26 months, can you also give us the same figures, in other words from January 1955 down to the end of February 1957?

Mr. MOLONEY. I can do this—may I have just a moment, please?

I have those figures in a little different way, which I will give, and then see, if I may please, whether I can answer your specific question. I would like to say that on the basis of present deliveries, present orders, present retirements, which is what you have in mind——

Mr. SAYLOR. Yes.

Mr. MOLONEY. At the end of 1957, in other words, January 1, 1958, we will have augmented our serviceable hopper-car fleet by 30,000 cars. In other words, we will have a net gain of 30,000 cars on that basis.

Now, if I may, I would like to see if I can answer your specific question.

I am sorry, but I cannot give you that for that exact period you mentioned. I can give it to you as I did for the 24-month figure. I just do not happen to have the breakdown on that one period of time that you mentioned.

Mr. SAYLOR. I would be interested just as a matter of comparison. I think that this committee is, at least I am, surprised agreeably to have this report, and I know that this is news, because up until this point we have not had any testimony before this committee to indicate that the railroads were taking this kind of an interest in the open hopper cars. After all, I know that most of the railroads have repair shops, and that they are trying to keep their cars in a reasonable state of repair, and in serviceable condition, because the more cars you have in operation, the better revenue position your railroad is in, and all the railroads.

Mr. MOLONEY. Yes, sir.

In the last 2 years—keep in mind, in 1954, as we all know, during the economic recession the railroads were compelled because of their earning situation to reduce maintenance of every type, including cars and so on. They were compelled to materially curtail their capital expenditure programs, which of course had an effect on the order book back in those days in 1954.

As I pointed out, by the end of 1955 we had about 45,000 hopper cars on the order book.

Then another point I would like to bring home to the committee is the fact that during the greater portion of this 2-year period of time that I have referred to, the last 26 months—I am sorry—during 1954 and 1955 the railroads had hanging over their heads the threat of the removal of between 800 and 900 million dollars per year from the gross revenues as a result of the expiration date on the Ex Parte 175 increases. Mr. Faricy, president of the Association of American Railroads, three times testified before the Interstate Commerce Commission that that expiration date, the threat of the loss of $900 million in gross revenues had a material curtailing effect on commitments for capital expenditures, or long-term indebtedness. And it unquestionably did.

Mr. SAYLOR. That is all.

Mr. EDMONDSON. Mr. Dawson.

Mr. DAWSON. In order to stimulate your thinking a little further, and to get you on another subject, I have before me the testimony of a witness in Pennsylvania, in which he makes the following statement:

> About a year ago, in order to save space, the railroads laid claim to a successful experiment of a coal-burning steam-powered turbine railroad engine, stating that the steam-powered coal-burning engine would cost approximately $44,000 per year less to operate than a diesel-powered engine of like power and size. Yet the railroads have done very little about it other than to lay claim to that bit of experiment.

Would you care to comment on the efforts of the railroads to develop coal-burning diesel engines?

Mr. MOLONEY. I am not sure that I am personally qualified to speak on that point. I do know, and as I said in my general statement, that was one of the activities and is one of the activities being carried on.

But as I understand it, that has not been perfected as yet. It is still in the realm of experiment. It is still in the future somewhere.

Mr. DAWSON. How much money are the railroads expending in experimentation on engines of that type?

Mr. MOLONEY. May I ask that question of one of the gentlemen in the rear?

Mr. Prosser, could you give some idea of how much the railroads are spending on this locomotive experiment?

Mr. PROSSER. I cannot give the exact amount.

Mr. EDMONDSON. Will you identify yourself for the record?

Mr. PROSSER. Fred Prosser, general coal traffic manager of the Norfolk & Western Railway.

I cannot give the exact amount of money, but the railroads have spent, I guess, several million dollars on that experiment, and it is still underway. They expect to have a locomotive on wheels now within about a year. The experiment is still going on, and we have learned an awful lot.

When we started out, we just thought we were going to put together parts that had already been perfected, assemble these parts, and we ran into problems we had not expected to encounter. But the experiment is going on, and we do expect this locomotive.

Mr. DAWSON. As I read your statement, Mr. Moloney, I observe that most of the references you make to experimentation were more or less back in the twenties and early thirties, when these experiments started, and along the middle thirties, I assume, when you converted to the diesels. Have you assumed now that you are going to continue on with diesels, and that you are giving up your research on coal-burning devices?

Mr. MOLONEY. No, sir. I think, as Mr. Prosser stated, that research is being carried on. That is not necessarily an industrywide research on the part of the railroads. Certain individual railroads that appear to have a greater interest in such development are still experimenting and carrying on with those efforts. In other words, it is not, as I understand, something that has been abandoned by any means.

Mr. DAWSON. Could you furnish us with some figures as to the amounts that the railroads are spending along that line?

The locomotive development program started in 1945, and expenditures have amounted to approximately $5 million to date. Seventy to 80 percent of that amount was contributed by the railroads. The spending today is at the rate of $150,000 to $200,000 annually.

Mr. EDMONDSON. Thank you very much. We appreciate getting that information in the record.

Mr. DAWSON. One other question. The statement was made that coal has for a long time suffered because of transportation problems, such as high inequitable freight rates which have in many cases exceeded the price of coal at the tipple or pithead. Do you care to present the railroads' position on the freight-rate question, briefly? I know it cannot be done briefly.

Mr. MOLONEY. No, sir; that is one thing that could not be done briefly. As you know, that is one thing that is at this very moment being done before the Interstate Commerce Commission in Ex Parte 206. In no way could I attempt to go into the details of the coal-rate

structure in this country, or the rate relationships of territory against territory, or so on. I frankly would like to, if I may say it, sidestep your question.

In the interest of making some answer, may I read to you what the Interstate Commerce Commission in Ex Parte 175, after having considered and heard and weighed the voluminous evidence introduced by the coal industry, and introduced by the railroad industry, concluded:

> We conclude that the general increase on bituminous coal here in issue is fully justified by the cost and value of the service and should be made a permanent part of the rate structure.

Now, for me to go into what was behind that finding, I am afraid, would carry this committee far into next year, probably.

Mr. DAWSON. I appreciate that. But I would like to remind the gentleman that this committee is deeply concerned about the whole welfare of the coal industry, and this matter of freight rates is, of course, a vital part of it. That is one reason we are looking into this question of other forms of transportation if we have to come to it. So I just hope that the railroads will keep in mind that they are cutting their own throats if they do not do something toward keeping these rates as equitable as possible.

Mr. MOLONEY. May I say this? That insofar as the destination value of coal is concerned, freight rates have in the more recent years, or, say, taking 1939 as a base year, the freight rate has become a decreasing factor in the destination value of the coal, and the mine price has become a correspondingly greater portion of the destination value of the coal.

But I think that the coal industry and the railroad industry have an interest in the matter before this committee that is important to both of us, could be extremely helpful to both of us, and I, for one, would hate to see injected too much into this research program or study a controversy between our good friends, the coal industry, and us over a rate structure.

Mr. DAWSON. We will leave that one.

There was a statement also made to the effect that the railroads got some tax concession as a result of having coal cars on order. I would like to read the statement that was made in that regard, and see if you care to comment on it.

I asked a question:

> Mr. Younkers, on page 2 of the statement it says that the railroads were allowed to have large unfilled paper orders for new cars without any hope of early fulfillment. What do you mean by that statement?
>
> Mr. YOUNKERS. An order was placed, as we understand it—and some publicity was given to it that 1 large railroad company took advantage of it, that they could get a tax exemption, but they had to show these cars on paper, and 8,000 cars were placed on order at the one time, as we understand it, as a matter of public press.

Of course, the orders were never fulfilled, but he infers the railroads did get some tax concessions as a result.

Mr. MOLONEY. I do not think that that is quite an accurate description of what I believe was the tax situation that the person had in mind. The only tax situation that I know of that would have had and did have some effect upon the order book was the rapid amortization, accelerated amortization.

Mr. DAWSON. Of course, that would depend upon having cars in your possession, and not just on order.

Mr. MOLONEY. Yes, sir. As I say, I am not familiar with how the mere placing of the car on order and so on gave a then immediate tax benefit.

Now, getting the cars certificated and authorized for future rapid amortization, yes, but not at the moment they went on the order book. I do not know how that could have been done.

Mr. DAWSON. That is all.

Mr. MOLONEY. Of course, keep in mind that this rapid amortization is no tax savings at all. All you are doing is deferring taxpayment and assuming—and we hope—that everything will run along all right in the future. The tax gatherer is going to come around and present you a bill for this exact amount. If we had not had this rapid amortization, frankly, no, we could not have made the capital expenditures that we have made, because we have somewhere around a billion and a half amortization. We have used deferred taxes to expand our capital plant because of our inadequate earnings.

Mr. EDMONDSON. Mr. Chenoweth.

Mr. CHENOWETH. Mr. Moloney, I am very much interested in your statement. I am also happy you brought Mr. Megee with you. He is an old friend of mine.

I assume that the railroad industry has confidence in the future of the coal-mining industry. Is that right?

Mr. MOLONEY. Yes, sir.

Mr. CHENOWETH. What do you base that confidence on? What is your observation on the future of the coal-mining industry?

Mr. MOLONEY. We feel this: That with the expansion that has taken place, and is continuing to take place in the electric utility field, the expansion that took place in the steel industry, the situation that exists in the overseas conditions, taking the coal people at their own word—and we have no reason to question it at all—that they have a very glowing future.

We find the economists, shall I say, associated with the coal industry, giving forecasts of 700 million tons, I believe, and maybe 800 million tons in 1975, and so on.

We feel, on this question of the total energy requirements of this country, that there is one source that can fill them today, it could fill them 50 years from now, it could fill them a hundred years from now, and that one source is coal.

We think with the program that you have in mind, with the reservations that we have made, that is, the fields that we think it ought to really emphasize and those that we think it should stay out of, this is one way to help insure the future of the coal industry.

Mr. CHENOWETH. Do you feel that anyone has been negligent in not carrying on a proper research program either in the industry or Government or the railroads? Or do you feel that along the line everyone has been diligent in trying to obtain new uses for coal, so as to increase production?

Mr. MOLONEY. I think there has been tremendous achievement in that respect.

Mr. CHENOWETH. I would like to state, Mr. Moloney, that in our field hearings, I have been surprised at the amount of money that is

being spent now on research by the coal industry itself, by the Government, and by different coal companies.

Mr. MOLONEY. May I say that we contribute, we are currently contributing to such programs, too.

Mr. CHENOWETH. You mentioned Bituminous Coal Research. I believe you contribute to their program.

Mr. MOLONEY. Yes, sir.

Mr. CHENOWETH. I want to ask you about this national advertising program that you state the railroads have been conducting. What is the purpose of those programs?

Mr. MOLONEY. The purpose of those programs is to build up the use of coal, and, in turn, build up the railroad coal traffic.

Mr. CHENOWETH. You are building up the use of coal for what purpose?

Mr. MOLONEY. Principally for heating purposes.

Mr. CHENOWETH. You mean domestic heating?

Mr. MOLONEY. Both domestic and, shall I say, industrial heating also.

Mr. CHENOWETH. Would you not agree with me that the day of domestic heating by coal is a thing of the past?

Mr. MOLONEY. Yes, sir; to a large extent, and principally because of the convenience and cleanliness and so on of the competing fuels.

Mr. CHENOWETH. Just as the railroads have gone over to other fuels, do you not think the homes of this country now have turned to other fuels for domestic heat?

Mr. MOLONEY. Not for the same reasons.

Mr. CHENOWETH. Not for the same reasons?

Mr. MOLONEY. No, sir. I think the railroads made their conversion more for economy reasons and savings, whereas the coal people, and I think properly so, still contend that B. t. u. for B. t. u., whatever it is, that coal is probably as cheap as any other competitive fuel.

Mr. CHENOWETH. But it is not likely that these decisions are going to be reversed and coal will again be used for domestic heating?

Mr. MOLONEY. No, sir. I think as far as the domestic picture is concerned, there probably will be no switch in that, and I feel there is nothing we in the railroad industry can do within our power to halt or reverse that trend.

Mr. CHENOWETH. The coal business is reflected in your carloadings. You referred to the figures here for a week in March. That shows it is definitely on the upswing?

Mr. MOLONEY. Yes; the carloadings that week, as I pointed out, were about 16,000 cars in excess of the same week in the prior year.

Mr. CHENOWETH. Is this a gradual increase, every week an increase, and every month so much?

Mr. MOLONEY. No, sir.

Mr. CHENOWETH. Is it seasonal?

Mr. MOLONEY. It has been both up and down over each week. I would say possibly the total loadings this year, for instance, the first part of 1957 are below the prior year.

Mr. CHENOWETH. Where have we lost out? Has export coal declined? Or is utility coal sagging? Or where are we losing out?

Mr. MOLONEY. No; I do not think export is down, and I do not think utility is sagging. I think you have to take into consideration

your stockpile and your inventories of coal, and the effect of that on the market, and demands for it. Weather conditions are important, too. Floods and things of that nature in given areas all have their effect on it week by week.

Mr. CHENOWETH. Do you feel, Mr. Moloney, that the increase in carloadings of coal is going to continue? Perhaps it might fluctuate, as you say, but do you think in the overall picture it will continue?

Mr. MOLONEY. I would prefer to let the coal people answer that question.

Mr. CHENOWETH. The railroads must have had confidence, or they would not have ordered all these new cars.

Mr. MOLONEY. I think our confidence is expressed in the capital expenditure program, not only our confidence for this year and the next year, but for many years to come. Our confidence is expressed in the capital expenditure program I have described to you, made under the earning condition that I have described to you.

Mr. CHENOWETH. You are not buying these hopper cars to put on sidings and let them rust there, are you?

Mr. MOLONEY. No, sir. But there does come a time, as there did in 1954, when we had an average daily surplus of about 40,000 hopper cars, and there were a lot of them standing around without earning money then.

Mr. CHENOWETH. What would that daily surplus be today?

Mr. MOLONEY. I would say today, at the present time, there is no hopper surplus. I gave you the figures for the week ended March 16, and told you that we had revenue loadings of 16,000 cars more than in the same week of the prior year, and I believe we had reported shortage of about 51 hoppers.

Mr. CHENOWETH. In other words, you feel that the railroads are able at this time to fill all the orders for hoppers they receive?

Mr. MOLONEY. And by the middle and the end of this year we will be in even better shape to do so.

Mr. CHENOWETH. Is not one of our main problems in the coal industry to keep the coal operators in business until this utopia is reached that we are anticipating in the future? They are having difficult problems now. There is no question of that. We found that everywhere in the field.

Mr. MOLONEY. I hope that the interest of keeping the railroads in business until that utopia is reached will not be overlooked, too.

Mr. CHENOWETH. We want to do that. Everyone recognizes the importance of keeping the railroads operating.

In our field hearings, I found a very definite optimism among all groups as to the future of the coal industry. However, there is not so much optimism for the immediate future. There has been some increase in business, and we hope that increase will continue, but there is a feeling that eventually coal is going to come into its own, and of course the railroads and others will prosper accordingly.

Mr. MOLONEY. When you take steel, the electric utilities, and export coal, and just roughly—I do not know. The coal people could give you the exact figures—I would say those three uses probably account for maybe 60 percent of coal production. If they do account for 60 percent, or whatever it is, then certainly as far as those fields are concerned, there is no immediate and tremendously depressing outlook.

Mr. CHENOWETH. I think the demand in these three fields is going to continue.

Thank you very much.

Mr. MOLONEY. I appreciate the opportunity.

Mr. EDMONDSON. Mr. Moloney, you have made a very fine contribution.

Mr. MOLONEY. Thank you.

Mr. EDMONDSON. In the remaining 40 minutes we have before the House goes into session, we are going to endeavor to hear the witness from the Bureau of Mines, and also from the National Coal Association. I want to make clear at this time, if you feel the time is too short to cover any particular point, we will be very glad to receive any supplementary views you want to file with the committee by letter or by statement.

I will ask the representatives of the Bureau of Mines to come forward, if they will—Mr. Ankeny, Mr. Scollon, Mr. Corgan, and Mr. Perry.

In what order will you make your presentation?

Mr. ANKENY. I will speak first, then Mr. Scollon, then Mr. Corgan.

Mr. EDMONDSON. You may proceed.

STATEMENT OF MARLING J. ANKENY, DIRECTOR, BUREAU OF MINES

Mr. ANKENY. Mr. Chairman and gentlemen of the committee, my name is Marling J. Ankeny. I am Director of the United States Bureau of Mines.

I would like to take this opportunity to express my appreciation to the members of this committee for the opportunity of appearing before the group and presenting this statement. As you may know, my appointment to the directorship of the Bureau of Mines was made subsequent to the start of these hearings and I was not privileged to appear at an earlier date. The importance of the work of this committee to the coal industry and the national interest cannot be minimized and, because of this importance, the Bureau of Mines has been represented at all public hearings held by the committee. We have been informed on a number of occasions that the chairman might wish to have testimony from the Bureau of Mines before the hearings are terminated on the important subject under review.

I have requested, therefore, T. Reed Scollon, Chief, Division of Bituminous Coal, and Joseph A. Corgan, Chief, Division of Anthracite, to be prepared to appear at the convenience of the chairman and discuss the Bureau's views regarding the possibilities of an expanded coal research program. These gentlemen are responsible for the discharge of the Bureau's responsibilities in the field of coal research, they have followed with care the testimony presented before the committee, and I am sure their remarks will assist the committee in its examination of the very complex subject now before the committee.

In conclusion I would like to extend a very cordial invitation to the members of the committee to visit the field stations of the Bureau of Mines and to view firsthand the work of the Bureau on the research fields. Many of our stations are engaged in research activities on commodities other than coal and you will be most welcome at these

installations as well as our coal stations. Anthracite research programs are conducted at Schuylkill Haven, Pa., while our main bituminous coal research laboratories are located in Pittsburgh, Pa., and neighboring Bruceton, Pa. In addition to the above locations, sizable coal-research projects are under way at our Morgantown, W. Va.; Denver, Colo.; and Grand Forks, N. Dak., field stations. Smaller and more specialized coal-research investigations are being conducted at Tuscaloosa and Gorgas, Ala.; College Park, Md.; Seattle, Wash.; and Anchorage, Alaska. If the committee members, either individually or as a group, would wish to visit any or all of the Bureau stations, I would be most pleased to make the necessary arrangements.

Thank you very much for the privilege of appearing at this time.

Mr. EDMONDSON. Thank you, Mr. Ankeny.

I want to inform you we do have plans during this session of Congress to visit several of your installations, and we will be in touch with you in advance of those visits. We appreciate very much the invitation.

Mr. ANKENY. Thank you.

Mr. EDMONDSON. Mr. Scollon.

STATEMENT OF T. REED SCOLLON, CHIEF, DIVISION OF BITUMINOUS COAL, BUREAU OF MINES; ACCOMPANIED BY HARRY PERRY, CHIEF, BITUMINOUS COAL RESEARCH BRANCH, DIVISION OF BITUMINOUS COAL

Mr. SCOLLON. Mr. Chairman and members of the committee, my name is T. Reed Scollon, Chief of the Division of Bituminous Coal, Bureau of Mines, and I have with me also Mr. Harry Perry, who is Chief of the Branch of Bituminous Coal Research in that same Division.

Mr. EDMONDSON. Mr. Perry was very helpful to us on the field hearings that we had, and we appreciate it very much your sending him on those trips with us.

Mr. SCOLLON. I wish to thank the subcommittee for the opportunity of appearing before you again to summarize the Bureau of Mines views on the hearings held in connection with H. R. 400. Fortunately, we have had representatives at the Washington and field hearings of this subcommittee and are grateful to the subcommittee for letting us follow its work so closely.

The hearings have reflected almost complete unanimity on the need for expanded coal research in this country. They have pointed out very forcefully the importance of coal, not only to this country, but to the welfare of the free world. Its value as a natural resource, its indispensability during periods of war, and the fact that it has a great effect on the livelihood of a significant portion of the population, have all been brought out by witnesses before this subcommittee. I am certain that this subcommittee is also aware of the tremendous importance of the availability of low-cost energy to the total economic level and to the standard of living of this Nation.

The coal industry is probably the only industry of any size in the United States that has been forced to operate on such small profit margins over the years. As a consequence, the coal industry has had protracted and frequent periods of depression. These are unusual in

an industry of this size with a total output in 1956 of 528 million tons with a value of $2.7 billion.

The long-range outlook for coal is favorable. Witnesses have testified that coal will be needed in the future in increasing amounts for the generation of electric power for chemicals, as a raw material, and for other uses. It was stated that the total energy requirements of the United States would increase by about two-thirds in the next 20 years. The extent of coal's participation in this increased energy market will depend upon prudent planning by the coal industry and related industries, or investments in new production capacity, and on an expanded and coordinated program of research. The short-range outlook is quite different, however, since in many areas current market demand is so low that conditions of unemployment exist. Several witnesses stated that, unless there was an immediate upturn in market demand, they could not in all probability keep the mines open for this long-range market that is expected to develop. The general trend away from coal over the years resulted in serious social and economic dislocations which are still a problem today in these areas. At a number of the hearings of this subcommittee this economic dislocation and the increased numbers of broken homes, people on relief, and even cases of juvenile delinquency have been stressed.

Research on coal will not only help to stabilize the industry by providing new outlets and new markets for coal, but it will do much to raise the hopes of the communities and the people who are engaged in coal mining. In fact, the hope that such research would give to these people would be of inestimable value to the well-being of such communities.

For these depressed areas immediate expansion of the short-range type research is necessary. In this connection, many of the witnesses appearing before this subcommittee suggested other approaches, in addition to research, that would be needed to grant immediate relief to the coal industry. Among these were the alleviation of seasonal shortages of railroad cars that occur in certain areas of the country, increased exports of coal, a change in the depletion allowance for coal, comparable to that of some competitive fuels, increased acreage of leases on Federal lands, and an examination of the Government's fuel-purchasing policy. This latter policy has been included in the White House report on energy supplies and resources policy, released February 1955, and reads in part as follows:

> **Prior to the purchase of any fuel by a Federal Government agency having a large annual use of fuel, that agency should request advice from the Office of Defense Mobilization as to how this purchase can contribute to the maintenance of a strong mobilization base within the domestic fuels industry. The Office of Defense Mobilization should be directed by Executive order to develop a mechanism for accomplishing this objective.**

There was general agreement that there are many possibilities for expanding the coal market, and that a large expanded research program could help solve the attendant problems. Among the things that could be investigated are improved methods for mining and transporting coal to put it in a better competitive position with regard to other fuels. However, by far the greatest potential benefits from research are in the field of utilization—development of new uses of coal. Such research will do most to stabilize the industry, and the

relatively small volume of this kind of research has been clearly demonstrated as one of the reasons for the ills of the industry.

Moreover, the witnesses have clearly testified that, in the past, there were few, if any, companies who could afford research on coal to the extent required to make any significant contribution to the development of new uses. Even now, there are only a few companies in an economic position to invest in large-scale research. There was general agreement that research efforts in the past have been feeble and that this situation should not be perpetuated. The importance given to coal research in other coal-producing countries was clearly demonstrated by one of the witnesses who pointed out the large number of people engaged in coal research compared to those employed in this country. The research effort on coal in this country is indeed small.

However, testimony has also brought out that, with increased recognition throughout the country of the need for research, local government and industry are doing something about it. Many of the States, including Pennsylvania, Virginia, Wyoming, and Colorado, have appropriated funds for coal research. Pennsylvania's appropriation is by far the largest, $500,000, and we were informed that efforts will be made to increase this amount. Other States have invested in research what they felt they could afford, but they have invested thousands of dollars instead of hundreds of thousands. which are needed to bring some of these programs to satisfactory conclusions. The testimony has also shown that coal-mining associations and individual companies have made efforts, within their economic limitations, to do research that would increase their markets or decrease their cost of production.

Most gratifying, however, was evidence that many of the communities that had been hardest hit by the decline in coal markets have, as a group, collected funds to invest in research on the coal problem of their particular area. Enough credit could not possibly be given to the efforts of these economically depressed areas for their foresight in attempting to help the coal industry of their areas recover. Again, the efforts have been on a small scale, hardly enough to carry out an effective research program.

Almost every witness who has appeared before the subcommittee has pointed out that there are many areas of research on new markets for the coals of the United States. Such research programs are numerous and complex. A point of particular interest is that the kind of suggested research depends on the rank and type of coal available to the community and on its geographic location. Many suggestions regarding both long- and short-range programs were made. The foresight of the witnesses in including long-range research is to be strongly commended. Obviously, however, some short-range research will be necessary if we are to stop the continual decline in the number of mines in some areas and consequently the loss of employment opportunities.

Of the many utilization programs that were suggested, an outstanding one concerned the production of liquids and gases from coal. The reasons for these suggestions are sound since the projected requirements of the United States for energy in these forms are very large and the reserves are relatively small. Another particularly

interesting suggestion was that of integrated plants for processing coal at the mine, with distribution of finished products directly from the mine to the consumer. This method of processing coal is quite common in Europe, and reducing the cost of transportation would have a tremendously favorable impact on the economic position of the coal-mining communities.

With this type of testimony, it was apparent that the recommendations of the witnesses could only be in the direction of increased research, at least partially paid for from Federal funds. Most of the witnesses agreed that the coal companies should expand their programs, that States and local communities interested in coal as a primary source of their income should also contribute, but that Federal funds would be required owing to the size of program necessary to develop the markets needed.

Many of the witnesses agreed with the statements of the National Coal Association and with the policies expressed with regard to the establishment of a separate commission for an expanded coal research program. The reasons cited were that the greatest achievements could be made in the shortest time, the most effective use of manpower could be made, research would be coordinated, and everyone concerned with the problem could have an active part in its solution. It was pointed out that the present method of financing Bituminous Coal Research, Inc., does not allow for a long-range fuels program, since the number of dollars assigned to research decreases during periods of low production when research is most urgently needed. The position of the Bureau of Mines with regard to cooperation for expanded coal research will be covered separately.

A number of other statements made during the hearings should be clarified. We should like to point out that considerable concern was expressed by a number of witnesses about duplication of research. However, a careful review of the testimony indicates that those people concerned about duplication were not the ones actively engaged in research. The Bureau of Mines, Bituminous Coal Research, Inc., and others with strong research programs are well aware of the programs of other organizations and have good working relationships with them. Moreover, duplication per se is not always undesirable. We agree that coordination of research should be continued, but with the program at its present or even at a greatly increased size there will be no difficulty, because of liaison between personnel actively engaged in such programs, in avoiding unnecessary duplication.

Some witnesses have taken positions against individual participants in certain phases of an expanded research program. For example, it was suggested that, as concerns mining, the Bureau of Mines engage only in work on the fundamentals of coal mining, and that the Bureau should not develop mining machinery. Actually, the Bureau of Mines, during its more than 40 years of existence, has deliberately avoided this field of activity for the reasons cited by the witnesses. Nothing in any of the Bureau programs resembles the development of mining equipment.

Statements were made by a number of witnesses concerning the amount of money being spent on coal research. For the purpose of keeping the record straight, we would like to say that the Bureau of Mines, in cooperation with Bituminous Coal Research, Inc., made a

survey, the results of which were given in Bureau of Mines Information Circular 7754. A review of this survey will indicate that we recognized our inability to get the total number of dollars being spent on coal research. However, between Bituminous Coal Research, Inc., and the Bureau of Mines we felt that we were very well informed with regard to those engaged in coal research and arrived at a figure of something over $17 million for 1955. Eight of the companies contacted did not supply information. Under the circumstances we felt that the $17 million figure, while we recognized it to be on the low side, was approximately correct as to the amount of money being spent on coal research in this country.

On several occasions, questions were raised by the subcommittee and witnesses regarding the closure of the Bureau of Mines installation at Louisiana, Mo., at which a demonstration plant had been erected for the production of liquid fuels and gases from coal. With the establishment of the Synthetic Liquid Fuels Act in April 1944, Congress directed the Bureau of Mines to erect demonstration plants for the production of liquid fuels and gases from coal, oil shale, and agricultural products. This program was pursued at a relatively high level of expenditure for the 11 years of the existence of this act.

The demonstration plant at Louisiana, Mo., was expensive to maintain and operate, despite the fact that much of the equipment was transferred to the Department of the Interior from the Department of Defense. Approximately $15 million of capital equipment was installed at Louisiana, Mo. Although the Bureau demonstrated that synthetic liquid fuels from coal are not economically competitive in this country at present, many things were learned that will be of future value when such production will become economical. A number of improvements were made in equipment; American manufacturers were familiarized with the problems and techniques of the two processes used; personnel was trained in building, maintaining, and safely operating equipment of a kind that had not been in common use in this country; American coals were demonstrated to be usable in these processes; and data were obtained on equipment and operating costs, and on the amounts and quality of the products. All of this information will have value in the future. Additional information could have been obtained by operating these plants for longer periods of time, but a decision had to be reached whether this program was yielding results commensurate with the costs of its operation. It was decided that at this time a wiser procedure would be to investigate further improvements in these processes on a much smaller scale before additional demonstration runs should be made. Smaller scale operation is not only more economical but more amenable to changes in design and construction, at nominal costs, for testing new ideas and processes.

The Bureau of Mines has continued these experiments, and much progress has been made in some aspects of the problems. If additional large-scale appropriations were made to the Bureau of Mines at this time for expanded research, we would still not recommend operation of such demonstration plants, but would prefer to expand small-scale research and development in this field and to spend part of the funds on other phases of coal research which badly need additional effort.

Copies of a statement entitled, "Expansion of Coal Research in the United States" have been made available to the subcommittee. This

document is an attempt to outline the areas of responsibility that the Bureau of Mines has in coal research and to consider the place that industry, universities, private research organizations, and trade research organizations have in the overall coal-research picture. An attempt has been made to indicate the reasons each of these groups has gravitated toward certain types of work.

We have also outlined different methods that might be used to expand the coal-research program in this country. The advantages and disadvantages of each method are discussed. While the most desirable method appears to be for each type of organization to expand its own research effort in its traditional field, several alternatives are proposed if it is decided that Federal funds be spent under contract authorization. Thank you.

Mr. EDMONDSON. If there is no objection, the document just referred to by the witness entitled "Expansion of Coal Research in the United States" will be made a part of the record at this point.

Thank you very much for supplying this to us.

(The document follows:)

EXPANSION OF COAL RESEARCH IN THE UNITED STATES

I. BUREAU OF MINES ACTIVITIES IN COAL RESEARCH

To appraise properly the Bureau of Mines position in coal research, it is necessary to review the organic responsibilities given to the Bureau and to examine the effects of previous internal decisions that outlined the scope of activities within the purview of the Bureau. After studying these limiting factors it is then appropriate to discuss preferred methods of handling an expanded coal research and development program if Congress so directs.

One of the primary functions of the Bureau of Mines is to improve the Nation's ability to meet the energy needs of an expanding economy and to insure the Nation's security.

Within the framework of the above objective, Bureau of Mines projects in coal research and development serve to—

1. Increase (*a*) efficiency, (*b*) economic development of the industry including new uses.
2. Conserve resources through prevention of waste.
3. Investigate mineral fuels belonging to or for the use of the United States.
4. Improve health and safety conditions in the mineral industries.

Consideration of means for attaining these objectives of the Bureau of Mines leads to the conclusion that Bureau authority covers all forms of coal studies, from fundamental research through development of processes and products.

Within this broad range of responsibility, approaches had to be chosen that were best suited for Bureau study. These decisions, made at bureau and departmental levels, have fashioned the policies which serve as guides for the areas in which the Bureau operates. In effect, wide responsibilities of the Bureau, as stated in the organic act, where circumscribed by a series of policy decisions that have tended to define the Bureau's position in the field of coal research and development.

To understand the Bureau's present position, one needs to define and discuss as follows the various fields of creative endeavor, even though no sharp boundaries delineate any of these segments:

Fundamental and basic research is scientific study for the sake of understanding the workings of nature and may or may not consider possible application of results. This type of work constitutes the origin of modern science and is still responsible for some of the greatest advances in science and technology. To cite only two well-known names, Newton and Einstein, will remind us that these scientists had no utilitarian urge to spur them in their formulation of the laws of nature. Where one investigator might study the petrography of coal to determine what types of plants had been living millions of years ago, another might study the petrographic constituents of coal with a view toward using

this knowledge in processing coal. Both types of endeavor would be included under the category of fundamental and basic research.

Applied research, an activity in which the United States excels, is undertaken to solve specific long- or short-range problems faced by industry through the practical applications of science. For example, at the present time, a systematic study of organic compounds in coal tar is being undertaken by industry to develop methods to process low-temperature coal tars with the object of developing marketable products. Much of the work that falls in the applied research category is closely alined with conservation problems. At times the study to develop new uses for a byproduct material opens up such a large market for the secondary product that the importance of the original, primary product becomes of minor significance.

Finally, development, again a strong point of American technologic activity, is the evolution and perfection of a process or product to some stage short of commercial production. Development is normally carried on in a series of stages, starting with the laboratory or bench-scale step, and going through one or more expansions in size (pilot and demonstration or semiworks plants). These steps are necesseary for economic evaluation and smooth development of any process, because generally not enough basic engineering information is available to assure solution of difficulties arising from operation on a large scale.

As one shifts from the fundamental through the applied to the development stage, not only do problems and objectives differ, but the cost of a program tends to increase. For this reason, much of the research done at universities is fundamental and basic. Government is doing a relatively small amount of such work, and commercial laboratories have found desirable some effort in that direction. The larger industrial laboratories also engage in this activity to a limited extent.

For long-range applied research, the emphasis generally shifts away from the universities. Government is very active in this field. Industry also is putting forth considerable effort along these lines and contracting for much of this type of work with commercial laboratories. Furthermore, combined industrial efforts are often expended in this field through laboratories supported by industry associations.

Short-range applied research normally concerns the solution of immediate problems, essentially troubleshooting. It is carried out largely by industry, which may farm out some jobs to commercial laboratories with special qualifications, especially when no facilities for such work exist within the industry.

Traditionally, industry does development work (or contracts for it), with the exception of those activities that do not show commercial promise in the foreseeable future. In such cases, Government may enter the field with the following objectives: To conserve natural resources, to aid in developing new industries, to guard national interests, and to preserve and improve public health.

On the whole, industry is more willing to place contracts for cooperative work at Government laboratories in spheres in which patents are not likely to be involved, because Government generally cannot permit private patent rights to work performed in Government laboratories. When Government contracts to have work done by industry, it usually reserves to itself at least the shop rights for patents. Also, Government normally prefers cooperative work which will be published freely, assuming that no security restrictions apply. As a result, regardless of the nature of the work, the fruits of research and development become available to the public in a relatively short time.

As universities have a similar attitude toward publication of the results of research and development, unnecessary duplication of effort is virtually eliminated for those activities carried on at the Government and university levels. Fields that are subject to such duplication are short-range, applied research and patentable technologic development that are undertaken privately. On the other hand, because of the competitive economic position, industry cannot publish as promptly and some duplication is unavoidable in a private-enterprise system.

Duplication of research is not, by any means, always wasteful, but sometimes deliberate and desirable. Among the reasons for such duplication are:

1. Experiments must be checked to make sure they are reproducible.
2. Competition can be a powerful stimulus toward achievement.
3. Different approaches to the same problem not only support each other's findings, but also give a more complete solution than either approach separately.

4. Sometimes one experimenter or team succeeds where another fails.

Certain kinds of service, research, and development traditionally fall outside the purview of the Bureau of Mines. The Bureau of Mines does not conduct service work for industry in areas where commercial facilities are available. The Bureau does not undertake development of equipment in competition with established manufacturers. Comparative tests of competitive products are not made. Likewise, the Bureau has refrained from assisting in the development of patented processes because of private benefits that may accrue to the patent holders. The Bureau does not engage in production enterprises of commercial scope, unless the product is of major significance for national defense and is not readily obtainable from commercial sources. Even in those rare instances, when commercial facilities become available, the Bureau withdraws from the production field.

An examination of the Bureau's research and development program over the years may reveal isolated cases where the Bureau has conducted work in each of the above areas. Generally, these exceptions were made after specific instruction from Congress to undertake such assignments.

Bureau of Mines work on coal is concentrated in the area of applied research, with some overlap into basic research and some into development. This position has been fixed by internal decisions rather than legal restrictions.

Following the above definitions of research and development and introducing one other term, service, the activities of the Bureau of Mines in coal may be classified as follows:

1. Service for other Government agencies; among these are sampling and analysis of coal, and help in maintaining the efficiency of boilers in Government installations.

These activities enable the Government to make a better selection of raw materials, to increase efficiency of its fuel-burning installations, and to lower cost of fuel purchases and equipment maintenance.

2. Fundamental and basic research; for example, on methods of coal analysis; constitution, structure, and reactivity of coal; and rates, mechanisms, and energy relationships of chemical reactions involving coal and its products.

While industry recognizes the need for this type of research, few private companies are willing and/or able to allot funds for these studies because of the long-range nature of many of the investigations and the improbability of achieving monetary return. With the exception of universities and colleges, the Federal Government is the major contributor to this kind of research.

3. Applied research; for example, correlation of petrographic analysis with behavior during carbonization, effect of roof and bed conditions on the application of mining methods, and application of theories of coal-washing processes.

Such projects are frequently long range and too expensive for the budget of the small operators. Bureau programs are chosen so as to be of greatest benefit to industry. Quite frequently, industry requests the Bureau to determine certain technical information that, coming from a nonprejudiced source, will be accepted by all as authoritative.

4. Development: (*a*) Processes, like hydrogenation of coal; (*b*) equipment that is not commercially available, and (*c*) instruments needed for the Bureau's own research program but not available on the open market.

Bureau activity in this field is selected so as to avoid competition with private companies. The work of the Bureau is generally restricted to those areas where the potential market is not sufficiently large to attract private enterprise. Many Bureau projects are long-range studies of processes of national significance that may be uneconomic at present but possess interesting future possibilities. When the results of the Bureau's work are favorable enough to interest private groups, the Bureau withdraws from the field of activity.

II. METHODS FOR HANDLING AN EXPANDED COAL RESEARCH PROGRAM IN THE UNITED STATES

Without regard to the difficulty of financing an expanded research program, it is believed by the Bureau that research and development programs should be expanded through projects carried out individually and separately by the Federal Government and in like manner by private interests using independent sources of funds. This approach has proved desirable as it gives private industry the opportunity to develop commercial applications and leaves to Government the field of conservation, basic science, health and safety, and the encouragement of an economically sound mineral and fuel industry.

Under this approach, work would be expanded in Bureau installations, under qualified supervisors, using equipment and facilities suited for the purpose. Scientific personnel trained under the program would be available to fill career positions in the Bureau organization. Test data could be made available with dispatch using the Bureau's established publication procedures. All significant data would be readily available for publishing.

Suggestions, however, have been made by some that the Government provide funds on coal research for non-Federal groups in addition to those now being supplied Federal agencies; the establishment by legislation of a Government agency for handling grants, making contracts, and being responsible for the conduct of such federally sponsored research would be required.

There appear to be four possible methods for an expanded coal program of this nature as follows:

1. Use of university facilities

This would be useful principally in handling basic or fundamental research. The research is usually not too costly, and supervision and facilities are generally adequate. Students employed on the projects would receive valuable experience and would be a welcome addition to the manpower reservoir of technically trained personnel. The use of university staff and students would not result in a drain on scientific and technical manpower now in short supply. Results of studies would be readily available to the public.

However, governmental control over the project and objective coordination between projects would be weak and evaluation of progress would be difficult, regardless of the nature of the investigation. At the present time, university facilities for conducting work of this type are limited.

2. Use of research laboratories of trade associations

This calls for the utilization of industrial research laboratories supported by funds collected from trade association members and supported by grants from the Government. The trade association or the research organization would apply for the grants which would be included in the total income of the organization and would be expended in the same manner as funds derived from the members. The activities of the research organization would be independent of detailed Government control, and selection and conduct of research projects would become the responsibility of the organization which could also support basic research at universities by direct appropriation from its general fund.

Under this type of program, funds would be available to support activity in all areas of research and development. Government control over expenditures would be be at a minimum. Projects could be readily changed to meet the changing needs of industry. The public interest could be served by full publication of all investigations. Trade association members would retain an advantage over the general public by receiving progress reports while research is underway.

The type of work likely to be taken up by such groups would be mainly applied research and would include an appreciable amount of short-range troubleshooting on problems common to a large fraction of the membership.

Some employees for the expanded program might be recruited from the Bureau rolls with resultant damage to the Bureau's own projects.

3. Use of private nonprofit organizations in an expanded coal research program

This type of organization might be used to handle all types of research—basic and applied.

Coal research conducted by nonprofit organizations would probably require more rigid contractual relationships than research done by universities, thus also increasing the administrative costs.

Purchase and disposal of necessary equipment may present some problems.

Some employees for the expanded program might be recruited from the Bureau rolls with resultant damage to the Bureau's own projects.

4. Use of industrial organizations

The services of this type of organization could be used under contract. The inflexibility of Government contracts would in itself provide some control over the work.

This appears to be the least desirable possibility. Such contracts usually require precise and expensive cost determinations by Government. The inflexibility of contracts, although promoting control, may hamper progress on the project. Administrative costs may become excessive in relation to the contract

amount. Dissatisfaction with the Government's selection of organizations to handle projects might result in administrative problems that outweigh scientific and technical consideration. Competitive advantages that may accrue to successful bidders through the granting of patents or the opportunity to acquire technical knowledge in highly scientific fields may become serious Federal administrative problems. Publication of experimental data might be delayed, and the details might not be too readily available in some cases. Having almost a free hand with respect to recruiting personnel, the industrial organization might seriously affect the scientific manpower market.

In summary, the Bureau wishes to state that its position as to the most desirable method expanding coal research in the United States is through chosen projects carried out by a Federal agency with Federal funds (or with added private funds as is now done at times under cooperative agreements) and through chosen projects carried out by private interests with non-Federal funds. If Federal funds are required to expand the research program, alternate methods as outlined above should be considered.

Mr. EDMONDSON. We have one further witness here from the Bureau of Mines, Mr. Joseph A. Corgan. Is that correct?

STATEMENT OF JOSEPH A. CORGAN, CHIEF, DIVISION OF ANTHRACITE, BUREAU OF MINES

Mr. CORGAN. My name is Joseph A. Corgan, Chief of the Division of Anthracite of the Bureau of Mines.

Mr. Chairman, I wish to thank you for the opportunity to appear before you again to discuss matters relating to research for anthracite.

Mr. EDMONDSON. We want to thank you, Mr. Corgan, for your help to the committee in your appearances. You have been most helpful to us.

Mr. CORGAN. In order to avoid repetition of my previous testimony before this committee on two other occasions, this statement covers only the highlights of our contemplated research program for anthracite.

People closely associated with the Nation's energy requirements predict that the future need for energy will place additional heavy demands on coal. Our reserves, therefore, must be minded and used efficiently to insure an adequate supply for our national-defense and normal peacetime requirements. The Bureau's research program on anthracite is aimed at developing new uses and preparation techniques, and improving mining methods to increase output per man per day, thus placing anthracite in a better competitive position. Gasification appears to offer the most promise of consuming large tonnages of anthracite. However, an economic gasification operation is dependent upon new and improved preparation and mining practices. The following describes briefly the Bureau's major research activity and plans on Pennsylvania anthracite:

After reviewing the studies carried on in the United States and Europe on the Lurgi process of gasification, it was concluded that large-scale tests were necessary to obtain the information needed to evaluate anthracite as a fuel in such a process. It is expected that a series of tests will be carried on in a commercial-size Lurgi generator at Dorsten, Germany, in the near future, using a rough-jigged coal containing approximately 25 to 30 percent ash and a washed and screened coal with a 15 percent ash content. Gasification of these coals should provide reliable technical data on which a determination of the overall economics of the fix-bed (Lurgi) gasifier could be based.

When this phase of the gasification research program is satisfactorily completed, consideration will be given to the construction of a commercial-size plant to be located within, or near, the anthracite region. This prototype plant would be a cooperative project with Government and industry sharing the cost and would be used to study further the use of gas produced from anthracite. The objective of this project is the establishment of a synthesis gas industry based on Pennsylvania anthracite as the raw material.

In conjunction with the large-scale gasification investigations, laboratory and pilot-plant experiments would be carried on to obtain a better understanding of many variables; i. e., effect of reactivity, ash content, and so forth, on gasification reactions.

In view of the impressive technical and economic developments that have occurred in directly reducing iron-ore fines with hydrogen, synthesis gas must be considered as a potential source of hydrogen for the metals industry. Gasification, therefore, offers several markets for anthracite; first, as a source of high British-thermal-unit gas which could be used as a natural-gas supply; and, secondly, as the source of hydrogen for the direct reduction of iron ore and for manufacturing amonia, synthetic liquid fuels, and synthetic organics.

Among many possible new uses, the field of metallurgy appears to offer other outlets for substantial tonnages of anthracite. Studies are in progress on producing a satisfactory anthracite fuel for use in foundry and blast furnaces. These investigations include the production of a calcined, or thermally stabilized, lump anthracite and an agglomerated anthracite fuel. It is planned to conduct cooperative tests on these anthracite metallurgical fuels in a commercial foundry cupola and blast-furnace to obtain performance data under actual plant conditions. The work now underway on developing a satisfactory metallurgical fuel from anthracite may well lead to an investigation of blast-furnace design that is best suited for anthracite. The small-size calcined products that accumulate when the larger size fuel is processed will be made available to the aluminum and other industries for independent studies on their use for lining pots in aluminum-reduction furnaces and as a reducing agent in the electric-furnace reduction of phosphorus.

The importance of conducting fundamental research on the physical and chemical characteristics of anthracite is recognized fully, and work is planned along this line. Such basic information would not only provide invaluable data to those industrial carbon users considering the adoption of anthracite to their specific needs, but would provide researchers with data needed for developing new processes and uses.

Studies have been started on several new processes, including the possible use of gas from anthracite in fuel cells for generating electricity directly, and on the chemical structure of anthracite to determine the feasibility of using it as a source of organic chemicals. Preliminary experiments indicate that anthracite can be converted to compounds which are soluble in certain solvents.

Future research on creating new uses must be supplemented by the development of new or improved preparation and mining methods and equipment to provide a fuel, or basic raw material, which is not only technically adaptable to a process but which will also permit the

producer to sell at a profit. Needless to say the selling price must prove to be economically attractive to the consumer.

Preparation research includes performance tests on various types of crushing equipment used to reduce larger lump sizes (egg, stove, and chestnut) to the intermediate sizes (pea, buckwheat No. 1, and rice). These studies are designed to obtain complete data on existing equipment to determine how it can be used most effectively in preparing the intermediate sizes, now being sold in increasing proportions, with the least waste in dust and fines. Studies will also be conducted on the effect of nonroll crushers (impact, jaw, ring, and gyratory types) on the more friable anthracites. The information developed may lead to an improved type of equipment for this specific purpose.

Anthracite cleaning methods are to be investigated to improve the preparation of the small sizes, with the object of producing lower ash material for specialized industrial uses. This research program includes consideration of the various combinations of coarse and fine stage cleaning equipment in complete installations; a continuation of the study on the fundamental washability characteristics of raw anthracite from the four fields; tests of heavy-media coal-washing equipment for evaluating factors other than the actual density of the separating liquid, such as sand size, liquid viscosity, and so forth; and, investigation of such fine-coal cleaning devices as concentration tables, spiral concentrators, flotation cells, dense-media washers and cyclones, and combinations of these in integrated fine-coal plants.

In planning the mining research and development program the time element must be considered. An estimate must be made of the tiime available for successful development of new mining methods and equipment. A mine area that would provide for uninterrupted testing of experimental equipment and methods under practical operating conditions would make it possible to reduce the time by 50 percent. This experimental mine area, the operation of which would be controlled by the Bureau, is considered necessary in order to carry on an expanded and concentrated research program. This work would be in close cooperation with industry and the United Mine Workers.

The work projects proposed include development of a continuous mining machine to be used in any anthracite bed where conditions favor a long-wall method. Preliminary tests completed over 1 year ago demonstrated the feasibility of such a machine for flatbed mining, and plans are in progress to develop the machine for commercial productive mining.

An expanded program will also include developing a large diameter boring tool, 5 feet in diameter, capable of driving both pitch and lateral development openings as a means of improving the efficiency, costwise, of mining operations, a mobile loading machine for use in mining flatbed pillars and chamber work; roof-support systems for use in mechanized long-wall operations in relatively thin, steeply pitching beds; and an underground mining system in which the operations of winning, gathering, transporting and hoisting, of mined material are accomplished by hydraulic methods. All available present-practice data pertaining to equipment, drilling rates, maintenance, and relative hardness of anthracite and rocks will be assembled and analyzed and recommendations will be made for a simplified standardization of equipment.

It should be emphasized that any research program for anthacite must coordinate research on mining, preparation, and utilization. Mining costs must be reduced, preparation practices improved, and new uses for the product found.

As indicated by witnesses testifying before your committee recently at Wilkes-Barre, Pa., the industry believes that research for anthracite is of such magnitude that the Federal Government has a definite responsibility, in the interests of conservation and national defense, in assuming the greatest burden of expense for research on anthracite. The Bureau of Mines has the wholehearted cooperation of the anthracite industry, the United Mine Workers of America, and the Anthracite Institute in its efforts to accomplish something of benefit for the people of the anthracite area and the anthracite industry.

The peak in anthracite production was reached in 1917. The industry has declined continuously since then until it reached about 28 million tons in 1956. It is true that during World War II production did go up to 64 million tons because of the great demand for anthracite as a substitute for oil at that time.

Now, the reason for the decline in anthracite, as you gentlemen have probably heard many times since the hearings started, is because of the substitution of oil and natural gas for anthracite.

There are three important points, it seems, that should be considered with respect to the Government's role, or the Government's interest, you might say, in the anthracite industry.

The first one is the human element with respect to unemployment and economic conditions in the anthracite region.

The second, I believe, would be the need of anthracite for national defense.

I believe the third would be the conservation of a great natural resource.

What can the Government do so far as research is concerned to help the anthracite industry?

I believe the most important thing that the Federal Government has to offer in services to the industry is the dedicated personnel that are working on anthracite research, and also the dedicated personnel that are working on bituminous research. These people are offering their services to the anthracite industry.

I have heard it remarked many times that a person has to be dedicated in order to work on anthracite research because it is so hard to do something with the particular fuel that we have.

In our efforts to determine the best way to help the industry we have examined all phases of research—gasification, mining, and preparation. We realize that we must find some big use, if we can, for anthracite.

It is obvious that space heating, while there may be a sizable tonnage still used for heating homes and hotels—we must find some sizable industrial use.

We believe that gasification is perhaps the best opportunity for anthracite. We have natural-gas lines crossing the anthracite field today, both the northern and the southern fields, in the Wilkes-Barre area where you gentlemen were a few weeks ago.

If it is possible to economically gasify and at the same time, through improved mining methods, reduce the cost of mining, then we really think that something can be done for the industry.

Now, in addition to the gasification, we are working, of course, on possible metallurgical uses with respect to calcined anthracite, and many of the phases that Mr. Scollon covered in his report. That is why I do not think it is necessary for me to go into all of them.

Mr. EDMONDSON. How substantial an effort is underway right now on this gasification program for anthracite?

Mr. CORGAN. May I have that again, sir?

Mr. EDMONDSON. How substantial an effort, in terms of manpower and money, is presently being made in this particular field of gasification of anthracite?

Mr. CORGAN. Two of the anthracite companies have been working on gasification, not only with respect to the production of a high B. t. u. gas, but with the possibility of producing hydrogen to be used in the direct reduction of iron ore. I would say that probably $750,000 has been spent on that end in the last 3 years by the anthracite producers, but they are handicapped to a great extent.

It seems that the Federal Government has entree into many processes, you might say, that the industry itself would have difficulty in entering into. But that does seem to be—at least we think at the present time, if we can gasify anthracite economically, if we can increase the output per man, improve the preparation practices, we believe that the industry may have a chance. But it is a tough battle.

I just have one other remark to make in connection with this. The Bureau of Mines has had most excellent cooperation from all the anthracite producers, and from the United Mine Workers of America, and they are behind us in whatever we can possibly do.

That is all I have, Mr. Chairman.

Thank you.

Mr. EDMONDSON. Judge Chenoweth, do you have any questions of any of the witnesses from the Bureau of Mines?

Mr. CHENOWETH. I would like to ask Mr. Scollon a question. You mentioned this possible duplication of effort?

Mr. SCOLLON. Yes, sir.

Mr. CHENOWETH. Do you feel that the Bureau of Mines is in a position to coordinate these efforts and bring them together under one roof, you might say, and avoid any possible duplication in the future?

Mr. SCOLLON. I think, to the extent that research results are known today, that we and Bituminous Coal Research are doing that essentially.

Mr. CHENOWETH. We hear a great deal now about an expanded research program. Just what would this program be now? Should we put more money in Bituminous Coal Research? Should we appropriate more money to the Bureau of Mines' program? I would like to have your observations and suggestions.

Mr. SCOLLON. We recommended in the statement supplied to the committee that we expand along present lines, that is, the Bureau of Mines' appropriations be increased for the Bureau of Mines' work, and that funds from another source be made available for expanded research by industry. We feel there is a distinct line between the types of research that the Bureau of Mines is doing on coal, and that which should be done by industry.

Mr. CHENOWETH. Do you feel that a new board or commission is necessary in order to supervise this work? I believe the suggestion

has been made by the National Coal Association about such a board. I am not familiar with all the details. I wondered what your thinking was along that line. If the question is embarrassing, I will not press it.

Mr. SCOLLON. No, Mr. Chenoweth. I can give you an indirect answer. It would depend a great deal on the size and type of expanded coal research. If we were to expand on the type of work that the Bureau of Mines is doing only, or if the expansion were to be entirely on industry's side, I think it would make a difference. If we were going to have expansion on both sides, a coordinating group might be helpful, but I think it would depend entirely on the scope of the program and the types of research that were going to be considered.

Mr. EDMONDSON. Will the gentleman yield?

Mr. CHENOWETH. Yes.

Mr. EDMONDSON. In other words, in one sense what you are saying is that, if the creation of this board were to result in any reduction of activity or program by the Bureau of Mines, or by existing facilities, that it might not be so desirable. Is that it?

Mr. SCOLLON. No, I did not mean that, Mr. Chairman. What I meant was that if this expansion we are talking about all went to industry or all went to the Bureau of Mines, just to take extreme cases, then I would feel there was less need for a coordinating body. If there were a large expansion on both sides, then I feel that some sort of coordinating body might be helpful.

Mr. EDMONDSON. Thank you.

Mr. CHENOWETH. You mentioned that you have determined that about $17 million a year is now being spent on coal research?

Mr. SCOLLON. Yes, sir.

Mr. CHENOWETH. And that does not represent the full figure?

Mr. SCOLLON. No, sir. I think it is rather close, however. We have included the companies that have made large expenditures for research. Some did not report. It is a minimum figure, but I do not think it is much greater than that.

Mr. CHENOWETH. I have heard larger figures mentioned than the 17 million.

Mr. SCOLLON. We have to define coal research, which is very difficult to do. Individual coal mining companies are doing work that might be considered development work or research, or just not be separately allocated. So to that extent the amount would be larger.

Mr. CHENOWETH. Let us assume we would double the amount of money being spent on the coal research program. Would we come anywhere near doubling the production of coal, or the uses of coal in this country? What would be the ratio?

Mr. SCOLLON. I cannot answer that.

Mr. CHENOWETH. We have heard so much about this research program and what can be done by developing new uses of coal.

Mr. SCOLLON. Yes.

Mr. CHENOWETH. I am not fully convinced that we have not pretty well explored that field. Maybe we can do a better job. Perhaps there are fields we have not investigated. But I have been rather surprised at the amount being spent for research, and it has been going on for some years. What are we going to do? Suppose we had $35 million or $50 million available. Just what would we do with that money which we are not able to do now?

Mr. SCOLLON. Mr. Chenoweth, I cannot answer your question directly as to what the resultant coal production would be.

In connection with the total expenditure for coal research, only 6 percent is on combustion of coal, where more research might result in some opportunity for expansion.

Mr. CHENOWETH. Six percent?

Mr. SCOLLON. Yes.

Mr. CHENOWETH. Of 17 million?

Mr. SCOLLON. Yes, $1.1 million annually.

Mr. CHENOWETH. In other words, you would say not enough money has been spent to develop the new combustion methods?

Mr. SCOLLON. Yes, I would. I would say by comparison with research money spent for other commodities that we are certainly lagging.

Mr. CHENOWETH. Who is to blame for this shortsighted policy, then? Is the Government to blame, or is the industry to blame? Who is to blame? Or is anyone to blame?

Mr. SCOLLON. That is a difficult question to answer. I think both sides have done just about as much research as they could possibly have done up to this point.

Mr. CHENOWETH. In other words, you are not critical of the industry?

Mr. SCOLLON. No, sir.

Mr. CHENOWETH. And you are not making any complaints against the Bureau of Mines? I just wondered if we increased the appropriations or made more money available what you would do that you are not doing right now. That is what I am trying to get at.

Mr. SCOLLON. In the report to which I referred, and which is a part of the record, we made recommendations for 209 research proposals. They all have a varying degree of value, and I do not think any two people will evaluate them the same. But there are 209 proposals of which, we feel, any group would be of great value to the coal industry.

Mr. CHENOWETH. Those are fields that have not been explored yet for one reason or another?

Mr. SCOLLON. There are very few fields that have not been explored to some extent, but many of them have had just a pitifully small amount of money spent on them.

Mr. CHENOWETH. You feel more money could be spent advantageously in those fields?

Mr. SCOLLON. Yes.

Mr. CHENOWETH. I think that is all, Mr. Chairman.

Mr. EDMONDSON. The consultant for the committee, Mr. Soule, has suggested it would be helpful at this point in the record if we could have the following data supplied by the Bureau of Mines—and I will hand this slip to you when I finish:

> The amount of money appropriated to the Bureau of Mines for coal research for each year, commencing with the year 1940;
>
> The number of employees engaged in such research by year;
>
> Giving the amount spent on (*a*) bituminous coal research and (*b*) anthracite coal research;
>
> Also a breakdown as to the research under (1) general appropriations and (2) special appropriations for specific purposes, such as under the Synthetic Liquid Fuels Act.

If there is no objection, we will ask that that particular statistical information be made a part of the record at this point, and that it be supplied for the committee by the Bureau of Mines.

(The information follows:)

Appropriations for Bureau of Mines coal research, fiscal years 1940–57

Fiscal year	Bituminous and lignite		Anthracite		Synthetic liquid fuels (including construction money)		Amount of construction money included in col. 6	Total funds excluding construction money in col. 8
	Amount	Number of employees	Amount	Number of employees	Amount	Number of employees		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1940	$300,680	92						$300,680
1941	317,970	95						317,970
1942	359,995	107						359,995
1943	426,130	119						426,130
1944	471,252	137						471,252
1945	408,612	135	$81,000	14	$3,090,000	240	$1,858,399	1,721,213
1946	454,930	84	66,000	13	5,336,430	444	3,392,398	2,464,962
1947	1,243,710	149	98,235	13	3,491,486	595	1,579,000	3,254,431
1948	695,294	104	[1] 105,000	14	5,275,000	673	1,833,524	4,241,770
1949	[2] 1,053,405	142	396,100	65	11,150,000	1,292	7,135,000	5,464,505
1950	[3] 1,365,793	152	480,409	68	7,153,625	1,325	1,126,079	7,873,748
1951	1,487,370	172	[4] 531,437	68	5,651,782	1,340	437,408	7,233,181
1952	1,530,866	190	434,594	60	5,093,570	1,225	296,430	6,762,600
1953	1,675,034	225	434,594	61	5,316,400	1,208	[5] 2,761,900	4,664,128
1954	1,682,476	252	367,524	65	2,285,200	724	71,900	4,263,300
1955	1,541,976	240	308,024	50	[6] 2,285,200	633		4,042,230
1956	1,576,776	237	671,224	52	2,830,040	576		5,078,040
1957	1,559,355	237	728,000	72	2,966,100	446		5,253,455
Total	18,151,624		4,702,141		61,924,833		20,492,038	64,193,590

[1] Plus $450,000 construction money for anthracite laboratory.
[2] Plus $200,000 construction money for lignite laboratory.
[3] Plus $550,000 construction money for lignite laboratory.
[4] Plus $300,000 construction money for anthracite laboratory.
[5] Includes $2,600,000 construction money for Morgantown, W. Va., laboratory.
[6] Includes $250,000 to close down Gorgas and Louisiana.

Source: U. S. Bureau of Mines.

Mr. CHENOWETH. Mr. Chairman, may I ask another question?

Mr. EDMONDSON. Mr. Chenoweth.

Mr. CHENOWETH. I noticed your reference to the Louisiana plant.

Mr. SCOLLON. Yes, sir.

Mr. CHENOWETH. You are aware of the fact you have been under rather severe criticism for closing that plant?

Mr. SCOLLON. Yes, sir.

Mr. CHENOWETH. Do you tell the committee today you feel you were justified in that action?

Mr. SCOLLON. Yes, sir.

Mr. CHENOWETH. And regardless of the amount of money you had available, you would have still followed the same course? Is that correct?

Mr. SCOLLON. Yes, sir.

Mr. CHENOWETH. You feel that the coal research program has not suffered because of the closing of the Louisiana plant?

Mr. SCOLLON. No, sir; I do not.

Mr. CHENOWETH. Are you continuing some work along that line? You said a smaller operation might be beneficial.

Mr. SCOLLON. Yes, sir, we are.

Mr. CHENOWETH. How much did you spend on the Louisiana plant altogether?

Mr. SCOLLON. $32 million.

Mr. CHENOWETH. And you felt you had come to the point where it could no longer be spent wisely, and you could no longer obtain full value for the amount you spent?

Mr. SCOLLON. Yes, sir.

Mr. CHENOWETH. That is all.

Mr. SAYLOR. Mr. Chairman?

Mr. EDMONDSON. Mr. Saylor.

Mr. SAYLOR. Actually what you proved at the Louisiana plant was that the German system, if duplicated exactly, will work in the United States. Is not that about all you proved?

Mr. SCOLLON. There were some improvements, but we felt many of them could have been made also on a much smaller scale.

Mr. SAYLOR. In other words, actually at that plant you were not doing any basic research?

Mr. SCOLLON. That is correct.

Mr. EDMONDSON. Did you have anything further, Mr. Ankeny, you wanted to add?

Mr. ANKENY. I would like to remark briefly on the discussions with Representative Chenoweth in relation to the size of the present research program, in which he expressed the feeling that perhaps $17 million was a great deal of money for a research program.

Mr. CHENOWETH. I did not mention that figure. I expressed the opinion that much more than that was being spent. I think Mr. Scollon agreed this was a minimum figure. I have heard the figure of $30 million used.

Mr. ANKENY. I see.

Mr. CHENOWETH. I do not know which is correct. I am not critical at all. I am happy to see this money spent for research.

Mr. ANKENY. Just to give you some gage to measure this matter of cost of research, I have a little booklet here by General Electric Co., 1957, in which they say:

> During 1957 the General Electric research laboratory will be nearing completion of a 5-year 15 million expansion program, which is increasing its staff and facilities by 50 percent, and at the completion of the program the staff will number 1,500, including 450 scientists. New facilities include a $5 million metals and ceramics building, a combustion and hypersonic building, two new wings to the main laboratory building, and other improvements.

That is the research program of just one American company in the United States.

Mr. EDMONDSON. Maybe we can attract General Electric into this coal research. [Laughter.]

I want to thank the members of this testifying group for what they have given us, and for their fine cooperation in the course of these hearings.

Mr. ANKENY. Thank you.

Mr. EDMONDSON. Mr. Sullivan, do you and your genial friend, Mr. Manasco want to take the witness stand now?

Mr. SULLIVAN. I just told Carter I would like to have him come up here, just to make the routine usual. I would hate to come up here by myself.

Mr. EDMONDSON. We are delighted to have both of you. We are delighted at any time to have Mr. Manasco grace our hearings. We all think a great deal of him, and think he and Mr. Pickett are a wonderful part of your organization.

Mr. MANASCO. Thank you, Mr. Chairman.

STATEMENT OF G. DON SULLIVAN, ADMINISTRATIVE ASSISTANT, NATIONAL COAL ASSOCIATION, WASHINGTON, D. C.; ACCOMPANIED BY CARTER MANASCO, LEGISLATIVE COUNSEL, NATIONAL COAL ASSOCIATION

Mr. SULLIVAN. My name is G. Don Sullivan. I am administrative assistant of the National Coal Association. I am staff assistant to the committee on research.

As you know, Mr. Chairman, I am appearing in place of Mr. Harry LaViers, the chairman of the committee on research.

Mr. EDMONDSON. You may proceed.

STATEMENT OF HARRY LaVIERS, CHAIRMAN, COMMITTEE ON RESEARCH, NATIONAL COAL ASSOCIATION (AS READ BY MR. SULLIVAN)

Mr. SULLIVAN (reading):

Mr. Chairman, my name is Harry LaViers, president of the South-East Coal Co., Paintsville, Ky. I am also chairman of the National Coal Association committee on research. You may recall that I previously appeared before this committee on June 4, 1956. At that time I promised to return before the committee completed its deliberations and supplement my previous testimony. That is the purpose of my appearance here today.

Recognition of the fact that the coal industry is one of our most essential industries and that research plays an important part in making possible the coal industry's fueling of our economy under any and all conditions has been recognized by our Government. In the White House Report on Energy Supplies and Resources Policy, issued on February 26, 1955, the President's Advisory Committee on Energy Supplies and Resources Policy, in section 7 of that report, had the following to say:

"7. RESEARCH AND DEVELOPMENT PROGRAM FOR COAL

"We recognize that coal is a great national asset and endorse a cooperative study to determine what research and development could be undertaken. The coal industry and both Federal and State governments should participate in this study and its cost."

Even before the Advisory Committee report of 1955, another presidentially appointed body, the President's Materials Policy Commission, in its report dated June 1952, volume 4, page 5, stated as follows:

"The United States is blessed with extremely large reserves of coal, which currently shares with petroleum and natural gas the burden of supplying our needs for the important element carbon. Coal is both a fuel for heat and power and the source of coke, which is used in the blast furnace for the production of iron, our most important metal. From the byproducts of the coking of coal are obtained the raw materials for much of our organic chemical industry.

"Although our steel and coal-tar chemical production have gone up very substantially in the past 30 years, our consumption of bituminous coal is scarcely any more now than it was 30 years ago, and that of anthracite is appreciably less. Our consumption of coal has dropped to one-half what it was in 1920 per unit of national product. Coke consumption, however, has more than tripled in this century largely because of the requirements of the steel industry."

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On the same page of the report referred to above, the Materials Policy Commission, more commonly known as the Paley Commission, has this to say about research in coal:

"The coal industry in the past has been dilatory in the development of improvements in efficient utilization of its product, in general tending to rely on its large consumers for such advances. Hence it was not prepared to meet the competition of the diesel locomotive. Research work is now in progress by the Locomotive Development Committee of Bituminous Coal Research, Inc., to develop a coal-gas-fired turbine locomotive, which may ultimately be able to compete with a diesel engine at a substantial annual saving per locomotive. By one estimate, such a saving might amount tof $50,000 a year for each locomotive.

"The fact that a beginning has been made in coal hydrogenation should put the coal industry on an upward path. An estimate made by one large company indicates that while only 95 million tons of coal per year were processed for coke and byproducts in 1950, the total in 1955 may rise to 126 million tons and by 1975 to 428 million tons. A large part of the 1975 amount would go into the production of liquid fuels, aromatics, synthetic ammonia, and synthetic methanol. Whether or not this volume is achieved will depend on the availability of low-priced crude oil and natural gas and on the extent of development of liquid fuel from shale. However, the inherent advantages in making a variety of chemical raw materials and chemicals in the coal hydrogenation processes will make for substantial progress in the use of coal in this field regardless of what happens in the fields of petroleum, natural gas, and shale. The evidence can be seen in the already existing Union Carbide & Carbon Co. plant for coal hydrogenation. It was installed at a cost of $11 million and company financed, and has a capacity for treating 300 to 600 tons of coal per day" (a report to the President by the President's Materials Policy Commission, June 1952, pp. 5–6).

It is to be recognized that there have been some changes in the economic status of the coal industry since my last appearance before this body, but the slight increase in the overall benefits to the coal industry have in no way lessened or minimized the importance of a research program for coal, nor has it in any way dictated a delay in putting such a plan into operation. As I previously told you gentlemen, the coal industry feels that a program of research has already been postponed too long.

An unbiased appraisal of the situation in the coal industry today is contained in a technical report entitled "Geo Surveys" isued by an independent engineering service here in Washington and dated March 24, 1957. The report has this to say:

"Business is picking up in the coal country, but not enough to let the operators relax. Production has risen from its 1954 postwar low only a little more than the net increase in exports."

I cite this reference merely to emphasize the fact that there are still many problems ahead for the coal industry and we feel that research can do much to solve many of these problems.

Just the other day I read a letter from one of the officials of a large coal-producing company. In it he reflected, probably better than I in my own words, the actual state of the coal industry today despite a seeming upturn in production:

"The coal industry is naturally pleased that it seems to have hit bottom and is on the upward trend. However, its fortunes are not yet so good that it can afford to ignore competition from oil and gas which have encroached on its markets during the past three decades and, incidentally, which are continuing to do so. While the industry as a whole now appears to be on the upgrade, a number of mines which have in the past profitably served the steam and domestic markets have lost out to oil and gas and are not participating in the upturn to the same extent as those which produce coal suitable for making metallurgical coke.

"Good as 1956 was in the way of production, it was not as good as the average production in the decade beginning in 1920. One might say that the coal industry, in the quarter century intervening, has stood still. This is a condition which I am sure your industry would not consider healthy."

It is true that research in coal has been inadequate and a more substantial program along these lines has been too long delayed. However, the coal industry

has contributed to research at least commensurate with its abilities. According to a study made by the United Bureau of Mines, a total of $17,382,400 was spent in 1955 on research in coal. However, it is a known fact that although efforts were to survey the coal industry completely it was not possible to cover every "nook and cranny" and therefore there are undoubtedly other sums of money that have been spent on direct research in coal as well as supplementary studies which are not included in the total above.

Of the $17 million plus, approximately $2½ million was spent by commercial coal operators; $1,200,000 by captive coal operators; and $3,220,000 by equipment manufacturers. We are in agreement that these expenditures are inadequate. However, it should be remembered that the coal industry contributed these sums to research at a time when its profit margin was exceedingly low. Furthermore, the components of our industry in the main, unlike the petroleum and natural gas industries, are mostly small. Therefore, the accumulation of any large sums for research, whether in 1955 or any other year, would have been a practical impossibility because the coal industry was barely able to provide maintenance costs and replacement of obsolete facilities and making needed expansions without having any extra funds for incidental activities.

When compared with the amounts being spent in other industries, in fact in industries that are direcly and effectively competitive with coal, this money is like a drop in the bucket. In some of the industries which are competitive with coal, as a source of energy, we find the United States Government footing practically the entire bill for research. Such research is designed to hasten the day when these competitive sources of power are enabled to economically undersell the coal industry in the energy markets. But without this Government support of research the competitive situation would be more realistic and coal permitted to meet its competitors on equal footings.

In 1956 the bituminous coal industry produced 500 million tons, based on the preliminary estimates of the Bureau of Mines. This definitely was an improvement over the total production for the year 1955, but it was far below the tonnage produced in our peak year of production, 1947, namely, 6,624,000 tons. Likewise, it was below the average annual production for the 10-year period, 1946–56, which was 5,412,000 tons. It was also below the average of the periods 1920–29 and 1936–46 which were, respectively, 510,202,000 and 506,784,000 tons. Therefore, with the exception of the depression years, the 1956 tonnage is below the average of any period in the last 40 years. The coal industry's production in 1957 is running approximately 5½ percent under the 1956 production for the similar period (January 1 through March 16). As of this date, we have produced 104,636,000 tons, or 5¾ million tons less than in 1956.

The coal industry executive to whom I previously referred spoke of the betterment in coal production in the year 1956 over 1955. The increase was from 470 million tons in 1955 to 500 million in 1956, or 30 million tons. Much of this increase must be attributed to the export business in coal which rose from a total of 51 million tons in 1955 to 69 million in 1956, or approximately 18 million tons. This is more than half of the total increase. As a matter of fact, the 1956 domestic consumption, plus exports, of bituminous coal were 5.8 per-

cent better than 1955. But with the extraction of the export business the domestic market only increased 3.9 percent.

In view of the fact that our foreign exports are extremely flexible, in that they rise to meet European fuel demands when other sources are not available to the European consumers, and drop when there is surplus in the world fuel markets, on a long-range basis we have to calculate on the basis of domestic consumption. Therefore, this slight improvement which occurred in 1956 over 1955 is far from the answer to the coal industry's problem of a stable basic annual marketed production which will permit expansion to meet future demands.

It is a definite essentiality that if the coal industry is to fulfill its obligations to our national economy it must have a continuing minimum annual marketed production of something more than 500 million tons. Without this base the coal industry's expansion to the levels that have been projected by official governmental bodies would be quite questionable.

The coal industry has heard glowing reports of the demands that will be made upon it in 1960, 1965, 1975, and 1980 in order to satisfy the growing energy needs of our expanding economy, whether it be peacetime or emergencies. In some instances the peak of coal tonnage needed to meet the situation has been estimated at 1 billion tons annually. In 1956 the coal industry produced just at 500 million tons. So, if such a peak is to be reached it will mean the coal industry doubling its capacity within a maximum space of about 20 years. Such an expansion is inconceivable without progress in mining machinery, mining practices, coal transportation, and coal utilization.

We cannot shut our eyes and assume that because the coal industry has, in the past, met the expansions required of it to fuel two World Wars and one military police action that we can continue to do so. It was providential that at the times that the previous crises developed there were available supplementary coalfields, machinery, and men, particularly in strip mine areas, that could be called upon to meet the emergency. Such is not the case today. The cream of coal mining has been exhausted.

Again referring to the so-called Paley report, volume III, page 28, in commenting on the future outlook for coal, the report has this to say:

"This Nation's abundant reserves of coal make coal a major long-range source of fuel and raw materials for a wide variety of industries. Sooner or later several major United States industries will have to sink their taproots deeply into our coal reserves, as did the railroads earlier. Steel has long been rooted to coal and will need increasing amounts. The electric power industry too has been a major customer but now shows signs of becoming a far larger one and a major collaborator toward putting coal more abundantly into use in a variety of ways. Likewise the fast-growing chemicals industry, long tied indirectly to coal through the route of coke and the steel industry, holds promise of becoming a much greater user along with the oil industry, which, when need and technology are ripe, can turn to coal conversion to secure an important portion of the Nation's liquid fuel supply. Nor is it inconceivable that the natural gas industry may someday turn heavily to coal as a source of product to fill its pipelines.

"These great coal-using industries, present and potential, have the financial and technical abilities to provide major leadership, along with Government and progressive members of the coal industry itself, toward deriving abundantly greater benefits for the Nation, and for other free nations as well, from our rich coal resources. The jobs to be done are evident. They will require intensive technological effort and large capital investment. The job is almost certain to get done someday as the need increase; the big issue is whether it will get along rapidly enough to keep the coal industry from going through another interim period of depression at great cost to the Nation. The challenge to avert such a misfortune rests largely with the several industries concerned" (pp. 28–29).

The same Paley report, in volume II, page 130, undertakes to project the consumption of bituminous coal based on the 1950 production figures to the 1975 demand. In the report referred to, table 15 shows an increase of total demand in 1975 from 522 million tons to 815 million tons, or 56 percent. The domestic consumption increase is 52 percent, or from 493 million tons in 1950 to 751 million tons in 1975. The table referred to is quoted herewith for your reference and study.

TABLE XV.—*Projected United States demand for coal*

End-use	1950 consumption (millions of short tons)	Percentage increase, projected	Projected consumption about 1975 (millions of short tons)
Bituminous coal:			
Coke ovens	103	52	157
Steel and rolling mills	8	62	13
Railroads [1]	61	−75	15
Residential and commercial [2]	87	−65	30
Cement mills	8	150	20
Electric utilities	88	240	300
General industrial uses	98	100	196
Anthracite	40	−50	20
Total domestic consumption	493	52	751
Exports [3]	29		64
Total demand for United States coal	522	56	816

[1] Class I.
[2] Retail dealer deliveries.
[3] Includes exports of coal and coke; coal used to produce exported products is allocated to consuming industries.

Source: National Coal Association, Bituminous Coal Data, 1950; Bureau of Mines.

In speaking of the projection used in this report, the electric generating tonnage is credited for the greatest increase. The report has this to say about that type of consumption:

"Electrical generating capacity is expected to rise by more than 300 percent. A lower figure was chosen for use in the projection of coal because of foreseeable increases of up to 25 percent in the efficiency of coal utilization for power-generating purposes. In this projection, coal is assumed to maintain its present relative share in power generation and other industrial uses. This assumption is considered reasonable under the hypothesis that 1950 price relationships remain, but should they change drastically in favor of either oil or coal, a correspondingly altered demand for coal would result" (p. 130).

In the future, expansion of coal-mining facilities will require the outlay of hard cash. Not only will industry be called upon to provide such facilities to meet the increased production needs, but in addition some of the present facilities currently producing coal will have to be replaced. So, the capital expenditures required to meet 1 billion tons of annual capacity demand will not mean just doubling present plant facilities, but more in the nature of an increase of 150 percent.

There is another factor which confronts the coal industry which is most important economically. A large share of the existing coal-mine properties were built and are capitalized on the basis of a cost ranging from $3 to $7 or $8 per ton of annual capacity. In today's markets the cost of constructing new or replacing depreciated plants, with their highly mechanized natures, is more nearly $10 to $15 per ton of annual capacity.

It is reasonable to assume that if such capitalization is to be made available it will have to come from public financing of one sort or another, at least from sources outside the industry. Right now there is some glimmer of recognition of possibilities in the coal industry by the investment banking fraternity. This favorable atmosphere may or may not continue, depending on how the coal industry is able to meet the growth factors of its future. Most people unacquainted with the coal industry have had the feeling that the coal industry is limited in its market outlook to conventional-firing industrial and commercial boilers, heating homes, and powering such of our Nation's railroads as still operate on steam engines. These categories in the future will be only a part of the coal demands.

It would be impossible to fortell just where an adequately financed and properly administered research program might lead the coal industry of 25 years from now. However, in the light of history, we can definitely assume that in many, if not in most, aspects it will be quite a different industry than it is today.

There are many fields in which the need for research cries for attention. Some of these may not be immediately urgent, but time is only comparative where research is involved, particularly if, in our calculations, we assume normal, peaceful existence, and without warning, we might be suddenly thrown into the turmoil of another world conflict.

Some examples of research projects which should be undertaken without too much further delay include:

PRODUCTION OF HIGH B. T. U. GAS FROM FOSSIL FUELS

The existing reserves of natural gas are becoming alarmingly short. This situation is recognized by most segments of the gas industry itself. There exists an imperative need for some source to replace the natural gas which is currently being fed into the gas pipelines which lace this country if hundreds of homes and industries, which are currently dependent, on natural gas as their sole source of energy, with millions of dollars of investment, are to continue to be served. Only research can produce the economical process to make such gas from coal, oil shale, or even other fossil sources.

I was particularly interested in reading some of the statements made before this subcommittee in their field hearings at Henryetta, Okla., and Pueblo, Colo. I am sure that the efforts of the Arkansas, Oklahoma, Wyoming, and Utah operators to find ways and means of carbonizing their coal not only for the purpose of providing a fuel for the metallic industries but also find a process for producing high B. t. u. gas did not go unnoticed by this subcommittee.

COAL-FIRED GAS TURBINE

For a number of years the coal industry, with the cooperation of certain railroads, has carried on an experimental project designed to produce a gas turbine locomotive fired by coal. It was the hope that this turbine would meet the competitive advantages in railroad operation by the diesel-fired locomotive. While gas turbines have been successfully operated for a long time, there were a great many new problems encountered when the gas turbine was adapated to coal firing. It took much research not only in the field of thermodynamics, but also into metallurgy. The years of research finally produced a unit which was felt acceptable for road testing, and it is hoped that in the not too distant future a locomotive equipped with a coal-fired gas turbine will undergo rail tests. It is recognized that there probably will be much research to follow this step before the coal-fired gas turbine locomotive is a practical competitor for the diesel type locomotive. However, the coal industry feels that there is an even greater and probably more lucrative field for the coal-fired gas turbine in stationary uses and in this field there is much research still to be done.

REDUCTION OR ELIMINATION OF SULFUR IN COAL SEAMS

Many low-grade seams of coal would be economically minable were it not for the objectionable inherent characteristics of the coal. Some coal, in its natural state, is even undesirable as a boiler fuel, but other which is not so low rank, with some refinement, could be used to augment our dwindling reserves of much-needed metallurgical type coals.

RECOVERY OF FINE COAL FROM COAL WASHERY SLURRY

In the process of coal preparation today, coal users demand a tailormade product. Frequently the coals are changed materially from the analytical characteristics they possess when removed from the seam. This is made possible through highly technical processes of crushing and washing which take place in the coal preparation plants. In this process, one of the prices which must be paid is the loss of a high-quality, almost pure carbon, fine coal which is carried over in the wash water which is wasted from the washing plant. This coal is of such a consistency that no present methods are available to recover all, or even a major part, of the coal solids in suspension. The result is that coal with the highest British thermal units content of any of the mine's products is dumped into slurry ponds and wasted. This product, if recovered, would be ideal for present-day power-generating plants, which are primarily powdered coal plants. Concurrent with such a research project would be the problem of developing an economical method of transporting such fine coals for reasonable distances without huge wind losses in transit.

MARKET AND DISTRIBUTION STUDIES

One of the major needs of the coal industry is a thorough study of its present markets, as well as research into what might be future markets currently untouched. Today the coal industry has only meager knowledge of coal movements from producing areas to consuming markets. As a matter of fact, no substantive data in this field has been available since 1946 which was the last period for which this information was collected under the Bituminous Coal Act. For this reason; the coal industry is under severe handicaps in knowing just what its competition is in any given market and what the volume of that competition might be.

Such information as is available as such is obtained on a hit or miss basis through salesmen contacts, industrial reports, trade publications, etc. But there is no comprehensive collection or compilation of such information. In one area alone a study of coal movements to show the transversal of areas by coals from different fields going to a common market would not only be of immense value to the coal industry but likewise would be very valuable to the transportation industry as well. Another field in which the coal industry has a growing interest, and from all reports is supplemented by an equally great interest on the part of European coal consumers, is in United States coal exports. A study of foreign markets for United States coal and research into ways of reducing the cost of ocean transportation for such coal could be most profitable.

The National Coal Association, which represents the bituminous coal industry of the United States, through the committee on research of which I am chairman, has given much thought and study to the whole subject of research. We are convinced that a well-developed research program in coal is one of the most essential, if not the most essential, of all factors which will contribute to the industry's ability to meet the future requirements that will be demanded of it in our growing economy, and for purposes of national security.

In general, the coal industry's policy on research is best covered by the resolution adopted by the board of directors of the National Coal Association on January 9, 1957, as follows:

1. That a coal research commission be established consisting of representatives of the coal industry, major coal-using industries, representatives of government, and such other representatives as may be necessary in order to provide proper representation by all parties interested in the establishment and progress of a coal research program. The responsibilties of this commission would be—

(*a*) To undertake a thorough and objective appraisal of the present status of research and development relating to coal production and use.

(*b*) To evaluate the effect which various trends will have on future markets for coal and coal utilization technology.

(*c*) To formulate, on the basis of these appraisals, a strong program of research and engineering development projects on coal production, distribution, and utilization.

2. That Congress provide ample funds for conducting such coal research program, with provision for using such funds in part for contracting with non-Government research organizations.

3. That provision be made for joint evaluation at certain specified periods, of the progress made and consideration given to such program changes as may from time to time be indicated.

Our study of the research operations of other groups has brought to our attention two outstanding research operations, namely, the National Science Foundation and the National Advisory Committee for Aeronautics. We feel that the pattern which was set by Congress in establishing these two independent agencies could well be adapted to the coal industry's problem.

For the information of the committee, we have submitted herewith memoranda covering each of these agencies, showing the enabling acts by which Congress established these agencies and something of their aims and policies. We feel that a similar body set up to handle the operation of a coal research program would meet every hope of our industry and provide the vehicle whereby much progress could be made in the shortest possible time.

The Committee on Research of the National Coal Association, after quite lengthy study, has developed some definite ideas as to how an independent Government agency for coal research might be established. In general, the ideas follow the legislation which made possible the National Science Foundation and the National Advisory Committee for Aeronautics.

In general, we would recommend legislation something along the following lines:

1. There would be established in the executive branch of the Government an independent agency to be known as the Coal Research Foundation which would consist of a Coal Research Board and a Director.

2. The Foundation would be authorized to develop and encourage the pursuit of a national policy for the promotion of basic and applied research in the production, distribution, and utilization of coal. It would also initiate and support basic and applied scientific research into the laws and principles underlying the basic problems of the coal industry in its broadest aspects. It would also make contracts or other arrangements (including grants, loans, and other forms of assistance) for the conduct of such research.

3. The Foundation would report to the President for submission by him to the Congress on or before the 15th day of January each year.

4. The Board could be composed of, say, 15 members appointed by the President. As a suggestion, we think that such a Board should include 1 representative of the Department of the Interior, 1 representative of the Department of Commerce, 2 representatives of colleges or universities interested in the subject of coal research or the scientific aspects of the coal industry, 4 representatives of the bituminous coal-mining industry, 1 representative of the anthracite mining industry, 1 representative of the public utilities industry, 1 representative of labor, 2 representatives of mining machinery and equipment manufacturers, 1 representative of the private research institutions and 1 representative of the public. Except for the members representing Government departments or agencies, the term of each member would be for 5 years. The Board would meet annually and at such other times as the Chairman might determine. The first meeting of the Board would be called by the President for the election of a Chairman and a Vice Chairman.

5. The Director of the Foundation would be appointed by the President by and with the advice of the Senate. The Director would be the chief executive officer of the Foundation. He would serve for a term of 6 years, unless sooner removed by the President, and would be compensated at a rate equal to the salary paid to directors of similar bodies in the Government. The Director would, in accordance with the policies established by the Board, exercise such powers and duties as would be delegated to him by the Board but no action would be taken by the Director in the appointment or fixing of compensation for personnel of the Foundation without review and approval by the Board.

6. The Foundation would have the authority within the limits of available appropriations to (*a*) prescribe rules and regulations deemed necessary governing the manner of its organization and personnel; (*b*) to make expenditures as may be necessary for administering the provisions of such an act under which the federation is created; (*c*) to enter into contracts or other arrangements (including grants, loans, and other forms of assistance) for the conduct by colleges, universities, corporations, firms, individuals, or other persons, of such research activities as may be approved by the Foundation; (*d*) to make advance, progress, and other payments which relates to scientific research; (*e*) to acquire by purchase, lease, loan, or gift real and personal property of all kinds necessary for its work; (*f*) to publish or arrange for publication of scientific and technical information deemed to be of scientific value consistent with the national interest; (*g*) to accept and utilize the services of voluntary and uncompensated personnel with proper provision of transportation and subsistence of such personnel when in the employ of the Foundation.

7. It would be understood that the usual arrangement with reference to patent rights produced through the work of the Foundation would be followed.

8. While the Foundation would contract for or appropriate to qualified research groups moneys for research projects, it would not operate any laboratories of its own. Members of the Board would be compensated on a per diem basis for the time engaged in the business.

9. In carrying out arrangements for scientific research, the Foundation would utilize appropriations in such a manner as to best realize certain objectives including (1) having the work performed by organizations, institutions, or individuals, qualified by training and experience to achieve the results desired; (2) strengthening the research staff of organizations, particularly nonprofit organizations, in the States, Territories, possessions, and the District of Columbia; (3) aiding institutions, agencies, or organizations which, if aided, would advance basic and applied research which would improve the production, distribution,

and/or utilization of coal; and (4) encouraging independent research of such types by organizations, institutions, corporations, or individuals.

10. For the purpose of carrying out the functions of such a program, we would recommend that there be appropriated for the work of such a Foundation a sum not to exceed $10 million for the first fiscal year of its operation, which appropriation would be increased by $10 million for each fiscal year thereafter, until at the end of a 5-year period a total of $50 million would be made available annually. Appropriations beyond that period would continue at $50 million annually unless in the discretion of Congress, on the basis of the results obtained, further increases in available funds for research projects would be felt necessary.

I realize that this may be considered an ambitious program but I assure you that an ambitious program is necessary if we are to accomplish the results that are dictated by the demands estimated by Government agencies to which the coal industry will be subject in the years to come. It is essential that the coal industry be able to maintain an active economic life, just as competitive fuel industries are doing, through a sympathetic and considerate, and I might add, helpful attitude on the part of the United States Government. If our national economy is going to require some 850 million tons of coal in 1975 without any consideration of the impacts that migh result from arising emergencies, then we must do those things now, including a realistic coal research program that will make possible a healthy coal producing industry for the future.

(Attachments to Mr. LaViers' statement follows:)

NATIONAL SCIENCE FOUNDATION

Director—Alan T. Waterman, 5306 Carvel Road, Zone 16.
Special Assistant—Neil Corothers 3d, 1518 34th Street, Zone 7.
Deputy Director—C. E. Sunderlin, 3036 P Street, Zone 7.
Secretary to the Board—Vernice Anderson, 539 Arlington Village, Arlington 4, Va.
Associate Director—Paul E. Klopsteg, Cosmos Club, Zone 8.
Associate Director—James M. Mitchell, 3237 Beech Street, Zone 15.
General Counsel—William J. Hoff, 3041 N Street, Zone 7.
Assistant Director for—
- Biological and Medical Sciences—John T. Wilson, 6309 Massachusetts Avenue, Zone 16.
- Mathematical, Physical and Engineering Sciences (Acting)—Raymond J. Seeger, 4507 Wetherill Road, Zone 16.
- Scientific Personnel and Education—Harry C. Kelly, 4415 15th Street North, Arlington 7, Va.
- Administration (Acting)—Franklin J. Callender, 814 Buchanan Street NE., Zone 17.

Head, Office of Scientific Information—Alberto F. Thompson, 9117 Walden Road, Silver Spring, Md.
Public information officer—Clyde C. Hall, 11209 Kenilworth Avenue, Garrett Park, Md.
Head, Office for the International Geophysical Year—J. Wallace Joyce, 6641 32d Street, Zone 15.
Head, Office of Special Studies—J. E. Morton, 2601 Calvert Street, Zone 8.
Head, Rubber Research Group—Paul S. Greer, 601 19th Street, Zone 6.
Head, Research Economics Group—Raymond H. Ewell, 5916 31st Place, Zone 15.
Comptroller—Franklin C. Sheppard, 205 C Street SE., Zone 3.
Personnel Officer—Leland P. Deck, 4945 Brandywine Street, Zone 16.

NATIONAL SCIENCE BOARD

Chairman—Chester I. Barnard, retired president, Rockefeller Foundation; residence, 52 Gramercy Park North, New York 10, N. Y.
Vice Chairman and Chairman, Executive Committee—Detlev W. Bronk, president, National Academy of Sciences, Washington 25, D. C., also president Rockefeller Institute for Medical Research, New York 21, N. Y.
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- Roger Adams, research professor, department of chemistry and chemical engineering, University of Illinois, Urbana, Ill.

Robert P. Barnes, professor of chemistry, Howard University, Washington 1, D. C.
Gerty T. Cori, professor, biological chemistry, school of medicine, Washington University, St. Louis 10, Mo.
John W. Davis, 112 Reade Street, Englewood, N. J.
Charles Dollard, former president, Carnegie Corporation of New York; residence, Irish Corners, R. F. D. 1, North Bennington, Vt.
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William V. Houston, president, Rice Institute, Houston, Tex.
George D. Humphrey, president, University of Wyoming, Laramie, Wyo.
O. W. Hyman, vice president, University of Tennessee, Memphis 3, Tenn.
Robert F. Leob, professor of medicine, college of physicians and surgeons, Columbia University, New York 32, N. Y.
James B. Macelwane, S. J., dean, institute of technology, St. Louis University, St. Louis 8, Mo.
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George Merck, chairman of the board, Merck & Co., Inc., Rahway, N. J.
Frederick A. Middlebush, president, University of Missouri, Columbia, Mo.
Joseph C. Morris, head, physics department and vice president, Tulane University, New Orleans, La.
Andrey A. Potter, dean emeritus, Purdue University, Lafayette, Ind.
Earl P. Stevenson, president, Arthur D. Little, Inc., Cambridge 42, Mass.
Douglas M. Whitaker, vice president for administration, Rockefeller Institute for Medical Research, New York 21, N. Y.
Alan T. T. Waterman, director, National Science Foundation (member, ex officio).

INTERDEPARTMENTAL COMMITTEE ON SCIENTIFIC RESEARCH AND DEVELOPMENT

Chairman—Dr. A. V. Astin, representing the Department of Commerce.
Vice Chairman—Dr. Byron T. Shaw, representing the Department of Agriculture.
Members:
Dr. Leonard Carmichael, representing the Smithsonian Institution.
Dr. Hugh L. Dryden, representing the National Advisory Committee for Aeronautics.
Rear Adm. Frederick R. Furth, representing the Department of the Navy.
Dr. Thomas H. Johnson, representing the Atomic Energy Commission.
Dr. George M. Lyon, representing the Veterans' Administration.
Mr. John B. Macauley, representing the Department of Defense.
Maj. Gen. James McCormack, Jr., representing the Department of the Air Force.
Dr. Thomas B. Nolan, representing the Department of the Interior.
Brig. Gen. Andrew P. O'Meara, representing the Department of the Army.
Mr. Walter M. Rudolph, representing the Department of State.
Dr. James A. Shannon, representing the Department of Health, Education, and Welfare.
Dr. Alan T. Waterman, representing the National Science Foundation.
Executive Secretary—Norman T. Ball, 3850 Tunlaw Road, Zone 7.

Creation and authority

The National Science Foundation Act of 1950 (64 Stat. 179; 42 U. S. C. 1861–1875), established the National Science Foundation to promote the progress of science; advance the national health, prosperity, and welfare; and secure the national defense.

Purpose

The general purposes of the Foundation are to—

1. Develop and encourage the pursuit of a national policy for the promotion of basic research and education in the sciences.

2. Initiate and support basic scientific research, and at the request of the Secretary of Defense, initiate and support defense related to scientific research activities.

3. Appraise the impact of research upon industrial development and upon the general welfare.
4. Review the scientific research programs and activities of the Federal Government in order to formulate methods for strengthening the administration of such programs and activities by the responsible agencies, and recommend to the heads of agencies concerning the support given to basic research.
5. Award scholarships and graduate fellowships in the sciences.
6. Foster the interchange of scientific information among scientists in the United States and foreign countries.
7. Provide a central clearing house for information covering scientific and technical personnel.
8. With the approval of the Secretary of State, cooperate in international scientific research activities.

Organization

The National Science Board consists of 24 members, appointed by the President, by and with the advice and consent of the Senate, and the Director ex officio. Members shall be eminent in the fields of the basic sciences, medical science, engineering, agriculture, education, and public affairs, and shall be selected on the basis of established records of distinguished service and in a manner so as to provide representation of the views of scientific leaders in all areas of the Nation.

The Director, also appointed by the President by and with the advice and consent of the Senate, is the chief executive officer of the Foundation. The Deputy Director, appointed by the Director, with the approval of the Board, performs functions prescribed by the Director, with the approval of the Board, and is the Acting Director during the absence or disability of the Director or in the event of a vacancy of the office of the Director.

The following organizational units are responsible for the various programs of the Foundation: Division of Mathematical, Physical, and Engineering Sciences; Division of Biological and Medical Sciences; Division of Scientific Personnel and Education; Office for International Geophysical Year; Program Analysis Office; and Office of Scientific Information.

Programs

The major programs of the Foundation are:

1. Development of a national policy for the promotion of basic research and education in the sciences, the analysis of the national scientific effort, and the evaluation of Federal research programs.
2. Strengthening of basic research in the mathematical, physical, medical, biological, and engineering sciences throughout the Nation by making grants and contracts for such research to educational, industrial, governmental, or other research institutions, or to individuals.
3. Awarding of graduate fellowships for scientific study at accredited institutions of higher education.
4. Maintenance of information concerning scientific manpower.
5. Promotion of the interchange of scientific information.

Approved:

ALAN T. WATERMAN, *Director.*

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

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Lt. Gen. Donald L. Putts, United States Air Force, Deputy Chief of Staff, Development.
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Or. Arthur E. Raymond, vice president (engineering), Douglas Aircraft Co., Inc.
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Hon. Louis S. Rothschild, Under Secretary of Commerce for Transportation.
Gen. Nathan F. Twining, United States Air Force, Chief of Staff.

Director—Dr. Hugh L. Dryden, 5606 Overlea Road.
Executive Secretary—Dr. John F. Victory, 2500 Wisconsin Avenue.
Associate Director for Research—John W. Crowley, Jr., 5303 Kenwood Avenue, Chevy Chase, Md.
Assistant Director for Research (Aerodynamics)—Ira H. Abbott, 3704 Bradley Lane, Chevy Chase, Md.
Assistant Director for Research (Aircraft Propulsion)—Addison M. Rothrock, 17 Forest Hill Road, Belle Haven, Alexandria, Va.
Assistant Director for Research (Aircraft Loads and Structures)—Richard V. Rhode, 5323 Bradley Boulevard, Bethesda, Md.
Executive officer—E. H. Chamberlin, 114 Olin Drive, Falls Church, Va.
Budget officer—Ralph E. Ulmer, 4004 48th Street
Chief, Division of Research Information—Eugene B. Jackson, 2008 Gallows Road, Falls Church, Va.
Chief, Division of Procurement and Supply—Ralph E. Cushman, 17 Forester Street SW.
Chief, Division of Finance—William M. Thompson, 1609 Byrnes Drive, Falls Church, Va.
Chief, Division of Personnel—Robert J. Lacklen, 5437 23d Street North, Arlington, Va.
Security officer—Robert L. Bell, 11501 Michale Court, Silver Spring, Md.
Director, Langley Aeronautical Laboratory (Langley Field, Va.)—Dr. Henry J. E. Reid
Director, Ames Aeronautical Laboratory (Moffett Field, Calif.)—Dr. Smith J. DeFrance
Director, Lewis Flight Propulsion Laboratory (21000 Brookpart Road, Cleveland 11, Ohio)—Dr. Edward R. Sharp

Creation and authority

The National Advisory Committee for Aeronautics was created by act of Congress approved March 3, 1915 (38 Stat. 930, as amended; 50 U. S. C. 151 and note).

Purpose

The law provides that "it shall be the duty of the Committee (1) to supervise and direct the scientific study of the problems of flight with a view to their practical solution; (2) to determine the problems which should be experimentally attacked, and to discuss their solution and their application to practical questions; and (3) to direct and conduct research and experiment in aeronautics" in the Langley Aeronautical Laboratory, the Ames Aeronautical Laboratory, the Lewis Flight Propulsion Laboratory, and in such other laboratory or laboratories as may, in whole or in part, be placed under the direction of the Committee.

The general purposes of the Committee are to—

1. Coordinate the research needs of aviation, civil and military.
2. Prevent duplication in the field of aeronautical research.
3. Conduct, under unified control of the Committee, scientific aeronautical research, including:
   (*a*) Special investigations in the nature of applied research on problems submitted by the Air Forec and Navy for immediate improvement in performance of military and naval aircraft.
   (*b*) Fundamental researches instituted by the Committee on its own initiative or auhtorized upon request of the Air Force, Navy, or Civil Aeronautics Authority to increase speed, safety, and economy of operation of aircraft, military and civil.
4. Advise the Departments of the Air Force and the Navy, the Civil Aeronautics Authority, and the aviation industry as to the latest research information.
5. Consider merits of aeronautical inventions submitted by the public to any agency of the Government.
6. On request of the President, the Congress, or any executive agency, to advise upon any special problem in aeronautics which may be referred to it.

Organization

The law provides that the Committee shall be composed of 17 members appointed by the President, including 2 representatives each of the Departments of the Air Force and the Navy (from the office in charge of naval aeronautics) and the Civil Aeronautics Authority, 1 representative each of the Smithsonian Institution, the United States Weather Bureau, the National Bureau of Standards, and the Office of the Secretary of Defense, together with 7 additional persons who are "acquainted with the needs of aeronautical science, either civil or military, or skilled in aeronautical engineering or its allied sciences." All the members serve as such without compensation.

Laboratories

The Langley Aeronautical Laboratory, at Langley Field, Va., the Ames Aeronautical Laboratory, at Moffett Field, Calif., and the Lewis Flight Propulsion Laboratory, at Cleveland, Ohio, are the principal aeronautical research laboratories of the Government, where the Committee conducts fundamental scientific research and development on which the Air Force, Navy, the Civil Aeronautics Authority, and the aircraft idustry rely for new knowledge underlying progress in improving the performance, efficiency, and safety of American aircraft.

Office of Aeronautical Intelligence

This Office was established in 1918. It serves as the depository and distributing agency for the scientific and technical data on aeronautics comprising the results of Committee researches and for similar information collected by the Committee from governmental and private agencise in this country and abroad.

Approved:

JEROME C. HUNSAKER, *Chairman.*

Mr. SULLIVAN. I think primarily what the committee is most interested in, aside from the justification of the whole project of research for coal, would be answering some of the questions as to specific fields in which research devolves, and also our suggestion as to the type of organization that might carry on a research program. In other words, what we suggest in the way of implementation.

Mr. EDMONDSON. Off the record.

(Discussion off the record.)

Mr. EDMONDSON. The House is now in session. It will be necessary to recess this subcommittee at this time, subject to the call of the Chair.

(Whereupon, at 12:15 p. m., the subcommittee adjourned to reconvene at the call of the Chair.)

AFTERNOON SESSION

(The special subcommittee met, pursuant to call, at 2:35 p. m., in the committee room, New House Office Building, Hon. Ed Edmondson, chairman of the subcommittee, presiding.)

Mr. EDMONDSON. The Subcommittee on Coal Research will be in order.

Before proceeding with further statements this afternoon from Mr. Sullivan, I would like to note the presence here of another of his associates in the National Coal Association, the Honorable Tom Pickett, whose interest in this investigation from the first has been made known on many occasions to the chairman and members of this subcommittee, and whom we are glad to see present this afternoon. I would be happy to have him join Mr. Sullivan at the firing line, if he would like to do so.

I would also like to note for the record the fact of direct requests to this committee to come into the coal-producing districts of the Honorable Kenneth Gray, from Illinois; the Honorable Harley Staggers, from West Virginia; the Honorable William Bray, from Indiana; the

Honorable Edgar Dixon, from Utah; and the Honorable Carl Perkins, from Kentucky.

As I stated earlier, we regret very much that our budget will not permit our visiting each of these areas. We realize their importance. We have assured these gentlemen of our interest in their district problems, and of our willingness to receive for the record and to give consideration to any statement they would care to file with this committee, both on their own behalf, and in behalf of representatives of the industry in their districts.

Now, Mr. Sullivan, if you would like to complete your remarks and get ready for some questions, we would appreciate it.

STATEMENT OF G. DON SULLIVAN, ADMINISTRATIVE ASSISTANT, NATIONAL COAL ASSOCIATION, WASHINGTON, D. C.; ACCOMPANIED BY CARTER MANASCO, LEGISLATIVE COUNSEL, NATIONAL COAL ASSOCIATION

Mr. SULLIVAN. Mr. Chairman, there are only a few comments I would like to make, directed to the text of Mr. LaViers' statement, which may further clarify the statement itself.

One is that the funds recommended here—it was our intention that those funds might be available until they were expended; in other words, not limited, if that would be possible.

The other is that there would be no disturbance of any of the present research projects or programs, such as the Bureau of Mines' bituminous coal research, and those other units that are currently carrying on research projects. It was not our intention to in any way interfere with the continuation of those activities.

Mr. EDMONDSON. I notice Mr. LaViers' statement gives detailed information of this Coal Research Foundation.

Mr. SULLIVAN. That is right, sir.

Mr. EDMONDSON. Which your association has suggested as a possible model for legislation in this field.

Mr. SULLIVAN. That is right, sir.

Mr. EDMONDSON. Are you prepared at this time to discuss details of that foundation and its operation? Or would you prefer to defer that comment until legislation is before the subcommittee that will handle it?

Mr. SULLIVAN. I think that would be more appropriate, Mr. Chairman. In other words, this is only a suggestion, and we have no pride of authorship, nor hold any brief for any particular idea, except the idea of the independent agency.

Mr. EDMONDSON. I might say, for my own part, that the objectives contained in this legislation, and the general approach are two things that I certainly personally approve of, and would like to sponsor, but I have some questions which I would like to discuss in some detail with representatives of your association.

Mr. SULLIVAN. I will be glad to try to answer any questions you might have, Mr. Chairman.

Mr. EDMONDSON. One thing that I was curious about was how your representation was determined on this foundation board, how you arrived at the breakdown of representation, for example, which would give 1 representative to the public-utility industry, 2 representatives

to the mining machine and equipment manufacturers, and no representation to a big user like the railroad industry or the steel industry, for example.

Mr. SULLIVAN. Let me say, No. 1, the utilities are today the primary consumer of coal in the United States. They are the largest consumer. They are the ones who are doing the most toward developing the high-pressure boilers, and many of the progressive steps that are being made in coal utilization in large quantities.

Mr. EDMONDSON. Presumably when you are speaking of utilities, you are speaking about electric utilities?

Mr. SULLIVAN. Electric utilities, yes.

Mr. EDMONDSON. And not natural gas utilities?

Mr. SULLIVAN. Oh, yes, that is right.

Mr. EDMONDSON. You do not have in mind a representative of the gas industry sitting as a member on this board, then? [Laughter.]

Mr. SULLIVAN. We certainly do not, sir.

As to the equipment manufacturers, mining equipment is broken up into a number of different fields. In other words, you have your preparation equipment, you have your tipple machines, and things of that sort, differentiated from underground mining or conveying equipment. You also have the equipment that is used in surface mining, the large shovels, bulldozers, and things of that sort. So one representative of the equipment people probably could not answer for both fields.

Mr. EDMONDSON. In that connection, I was interested to hear at one of our Pennsylvania hearings, I believe, testimony from one of your largest mine equipment manufacturers, to the effect he did not believe there should be any research in mine equipment and mining methods, that he thought that type of machinery and equipment and research on it were problems for the mining equipment industry and not for any Government-sponsored research project. Do you think that that represents the general feeling in that branch of the industry?

Mr. SULLIVAN. I certainly would not undertake to answer any questions for the mining equipment industry, but I would like to point out that in the mining development committee, which is currently in operation, that is all they do. As a matter of fact, they developed the continuous miner, which was taken over by one of the equipment people and further marketed.

Mr. EDMONDSON. I was just curious about your giving two representatives on this board to an industry where the only witness we heard, I believe, from that industry, said he did not think there ought to be any Government research.

Mr. SULLIVAN. As a matter of fact, as I say, there is no hard and fast rule. This was just the thinking of the coal industry that those two segments of the equipment people should be represented. If they object to being represented in the foundation, we certainly would not have any idea of forcing that representation upon them.

Mr. EDMONDSON. My thought on that would be that they would be delighted to be on this board, if they feel that way, to kill any research in this field.

How about the railroad industry? Did you give consideration to the railroad industry being on the board?

Mr. SULLIVAN. Yes, we did. The railroads have indicated that they did not want to be included in the research program. They made their views known far in advance. So we felt it would not be appropriate to include representation on a foundation in which they had no desire to be represented.

As I say, these are only suggestions, Mr. Chairman, and we admit that perhaps our views might be altered in keeping with the views of other parties interested.

Mr. EDMONDSON. This recommendation as to appropriations for the operation of this program would be definitely and clearly in addition to any appropriations for coal research in the present Bureau of Mines?

Mr. SULLIVAN. That is correct, sir. I do not think we want to become involved in budgetary matters within the present administrative program.

Mr. EDMONDSON. If I understand your recommendation on appropriations correctly, it would be for $10 million the first fiscal year, $20 million the second fiscal year, $30 million the third fiscal year, $40 million the fourth fiscal year, and $50 million the fifth fiscal year. Is that right?

Mr. SULLIVAN. That is right. On the theory that a research program of the magnitude which is envisioned here could not get into full force and effect in 1, 2, or 3 years. It would be a progressive thing.

Mr. EDMONDSON. It would be a total of $150 million, would it?

Mr. SULLIVAN. Over a 5-year period.

Mr. EDMONDSON. Is it contemplated that it would continue after this first 5-year period at $50 million?

Mr. SULLIVAN. I think that would be dependent upon the results that were obtained, and the pleasure of the Congress at that time.

Mr. CHENOWETH. Will the gentleman yield?

Mr. EDMONDSON. Yes.

Mr. CHENOWETH. $150 million is the recommended Government appropriation?

Mr. SULLIVAN. That is correct, sir.

Mr. CHENOWETH. What would the industry contribute?

Mr. SULLIVAN. The industry is now carrying on, I think, to the limits of their ability and would continue to do so.

Mr. CHENOWETH. Would this duplicate or supplement or supersede what the industry is doing?

Mr. SULLIVAN. No, no; absolutely no. As I said in prefacing my remarks, Congressman, it is not our intention to supersede or displace any current projects that are now in operation. These would all be supplemental to anything that is now going on.

Mr. CHENOWETH. That is all, Mr. Chairman.

Mr. EDMONDSON. I think that there are a number of things in connection with these recommendations that are worthy of very careful consideration by any potential author of such a piece of legislation.

I do not know whether by your reference to the current administrative budget picture you meant the climate that is present around here on the ideas for increased appropriations or not, but that is certainly something we would want to give some thought to in the formulation of this program. Speaking very frankly to you, my

own personal reaction to this proposal at this time is that this would not be a propitious time for sponsorship of a program that is this ambitious in terms of expenditure.

Mr. SULLIVAN. We realize that you, as a congressional legislator might have that view. However, we of the coal industry feel that any program has to be ambitious if we are to accomplish the aims and the projections that have been set up for us to meet, if we are to satisfy the needs of the national economy.

I might say, Mr. Chairman, that we realize, of course, that this would require study, and probably a lot of revision before anybody would want to author it upon the floor of the House.

Mr. EDMONDSON. I am interested in this sentence appearing at page 5 of Mr. LaViers' statement:

> It is a definite essentiality that if the coal industry is to fulfill its obligations to our nation economy, it must have a continuing minimum annual marketed production of something more than 500 millions tons.

How did you arrive at that 500 million tons?

Mr. SULLIVAN. The 500-million-ton figure is the level at which the coal industry must operate if we are to expand within reasonable limits in order to meet a total annual production, say, in 1975, of 800 million tons. In other words, for instance, meeting the coal requirements of the economy in 1947 of 630 million tons, we had to have a starting point of approximately 500 million tons to go from that to 630 million tons. Progressively, as we have to expand, say, within a 12-month period from, we will say, 700 to 800 million tons, it is going to be increasingly more difficult to go from 700 to 800 million than it is now to go from 500 to 600 million because you have to have more equipment, more capital investment. Right now, the coal industry is faced with the problem of meeting a problem of capital investment in order to provide the facilities which will enable them to deliver 700 to 800 million tons.

Mr. EDMONDSON. You do not think the present equipment in the coal industry could produce 700 million tons a year if they operated on a year-around basis?

Mr. SULLIVAN. I would not say it would be impossible, but I say it would be very difficult.

Mr. EDMONDSON. And it probably would be uneconomical?

Mr. SULLIVAN. Aside from the economics, I am talking now about the physical facilities. In other words, if we could get 700 million tons out of the ground, there is a question of whether we could get it to market or not.

Mr. EDMONDSON. You heard the testimony earlier today of the representatives of the American Association of Railroads——

Mr. SULLIVAN. Yes.

Mr. EDMONDSON (continuing). With regard to the equipment gains that have been made in that industry. Do you feel that present equipment, which is only about 51 cars short of the needs of the coal industry—I believe it was 51 cars——

Mr. SULLIVAN. That was the week of March 16.

Mr. EDMONDSON. Do you believe that is an accurate measurement of the needs of the industry for equipment?

Mr. SULLIVAN. Of course, Mr. Moloney was talking on an average and an entire United States basis. On that premise I presume that

his figures are probably correct. I would not presume to contradict his estimate.

Mr. EDMONDSON. Is there any seasonal factor present at this time in March that should be taken into consideration in measuring that 51 cars?

Mr. SULLIVAN. I did not understand the first part.

Mr. EDMONDSON. Is there any seasonal factor that is present at this time in the month of March that might make that 51-car figure appear to be either high or low for an average time?

Mr. SULLIVAN. The one thing that might be influential is the lake movement, which will begin opening up here now about the first of April, which will divert a lot of open-top equipment to that territory for the movement of iron ore. You also have your grain movement in the West, you have your sugar beets, you have your sand and gravel which is now coming into demand during the construction season, these would further diminish the supply of open-top equipment in the season to come. Those are the only comments I would have to make on those figures, as you say, as a projection, or as a seasonal matter.

Mr. EDMONDSON. Judge Chenoweth, do you have any further questions?

Mr. CHENOWETH. I want to first thank Mr. Sullivan for the splendid cooperation he gave me personally in arranging the hearings at Pueblo, Colo.

Mr. SULLIVAN. It was a pleasure, Judge.

Mr. CHENOWETH. You were very helpful, and we got a very representative group from the coal-mining industry, not only from Colorado, but Utah and Wyoming also. I know you had a very large part in making this possible.

Mr. SULLIVAN. Thank you.

Mr. CHENOWETH. Mr. Sullivan, what we are trying to do on this committee is to see if we can help the coal-mining industry. I think everyone recognizes it has been a rather sick industry.

Mr. SULLIVAN. Right.

Mr. CHENOWETH. We have been in Pennsylvania twice, Virginia, Oklahoma, and Colorado, and the same conditions are duplicated everywhere we go. The operators, for the most part, are having a difficult time.

Mr. SULLIVAN. Yes.

Mr. CHENOWETH. It is a question whether or not they are going to be able to hold out and be in operation at the time this rosy period arrives which you are all predicting in 10, 15, or 20 years. What can we do to stimulate and resuscitate the industry right now? Is research the answer? A long-range program may bring about the ultimate revival of the industry, but it is not of any immediate help.

Mr. SULLIVAN. We feel, Congressman, there are two types of research. When you speak about research, you are talking about a long-range program which carries on and looks far into the future. But at the same time you have projects that are imminent right now that should be undertaken at once. I think you heard of a couple of those cases out in your territory, as I recall, the schools out there. One of them needed, I think it was, $30,000 to carry on a project in carbonization.

Mr. CHENOWETH. Where was that—in Oklahoma?

Mr. EDMONDSON. And in Colorado.

Mr. SULLIVAN. Also in Pueblo. Those are things that are immediately imminent. I think you have to consider that research is not limited to the long-range scientific approach, but we also have the practical approach. It is our hope if we can get a research program instituted immediately, that we can aid materially in cultivating markets which will help the coal industry tide itself over until, as you say, these rosy days come about.

Mr. CHENOWETH. You say "if we can get a research program." Don't we have a research program now?

Mr. SULLIVAN. We do have one.

Mr. CHENOWETH. $17 million a year is being spent right now on the research program.

Mr. SULLIVAN. But it is inadequate.

Mr. CHENOWETH. So a research program is not the whole answer to this problem.

Mr. SULLIVAN. More research, I should have said.

Mr. CHENOWETH. Do you think if we had doubled our expenditures for research that some of the coal-mining communities would now be thriving that are shut down?

Mr. SULLIVAN. I would say there is a very definite possibility that could have been true.

Mr. CHENOWETH. Has the coal industry recognized such a possibility?

Mr. SULLIVAN. I think we have currently. If we go back into history, we probably could be charged with sinning on the score that we were not anticipatory.

Mr. CHENOWETH. I have always observed that coal operators are pretty practical people.

Mr. SULLIVAN. That is true.

Mr. CHENOWETH. And are trying to go as far as they can in this picture. But it is obvious many of them have come to the end of the road. They just have no market for their coal.

Mr. SULLIVAN. That is true, and I think there is where our big research program should be aimed to meet that problem of developing markets for coal.

Mr. CHENOWETH. What market would you develop by a research program?

Mr. SULLIVAN. One that comes definitely to mind is the reduction in the sulfur in coal, whether it is inherent or extraneous; that would make more coals adaptable for either metallurgical purposes or high-type boiler use. There are a number of low-grade coals today, because of their sulfur content and their high ash, that cannot meet the specifications that many industrial users put upon fuel.

Mr. CHENOWETH. On the other hand, Mr. Sullivan, you do have those coals that can meet the specifications, and there is no demand for them. The mines are closed up and abandoned.

Mr. SULLIVAN. I do not think you will find any metallurgical coal mines that are closed up.

Mr. CHENOWETH. None in this country?

Mr. SULLIVAN. Not many.

Mr. CHENOWETH. What do you mean by metallurgical coal? How would you describe it?

Mr. SULLIVAN. Low volatile coals that are adaptable to coke-making for steel mills.

Mr. CHENOWETH. I come from an area which has a large deposit of coking coal. We have two mines left in that area which belong to the Colorado Fuel & Iron Corp. If it were not for this company, all of our mines would be completely closed. I think that is the largest deposit of coking coal west of the Mississippi.

Mr. SULLIVAN. I think probably one of your major problems there is the movement to the steel mills. There is not enough consumption right there in Colorado Fuel & Iron.

Mr. CHENOWETH. Just over the line in New Mexico, I understand the Kaiser people bought the St. Louis, Rocky Mountain, and Pacific Co., which company had large deposits of coal.

Mr. SULLIVAN. Yes.

Mr. EDMONDSON. I wish I could agree with Mr. Sullivan that there is no shutdown in metallurgical coal mines, but one of the areas that we visited was an area with very fine low volatile coal, the Henryetta area, and although they are operating in one mine getting out some of that coal, there are a number of other mines shut down which had previously furnished the supply for steel mills in the past.

Mr. SULLIVAN. How far is that from a consuming steel mill now?

Mr. EDMONDSON. It is several hundred miles, and that is part of the picture. Of course, there may be other factors, too. There may be degrees of quality in that field that influenced the shutdown. I do not know. But it is certainly a field that is known as a metallurgical coalfield.

Mr. SULLIVAN. There is a known shortage of quality metallurgical coal today. As a matter of fact, it is something that is giving the steel people themselves trouble. As Congressman Chenoweth pointed out, Kaiser has bought up all of that area down in there only for a reserve for their own steel mills, and are holding it.

Mr. EDMONDSON. I think there is a keen interest in the Henryetta field as a reserve, too, but that does not mean there are not shutdown mines in that classification of coal right now.

Mr. SULLIVAN. Yes, but it is a distribution problem, not because of a lack of demand. In other words, your situation at Henryetta is that your producing field is remote from the consuming area, and when you put that coal into the steel mill you run into an economic disadvantage which the steel mills cannot overcome.

Mr. EDMONDSON. Yet some of that Henryetta coal—possibly not the Henryetta coal, but coal in eastern Oklahoma is being shipped out to Judge Chenoweth's district in Colorado because of its low volatile character.

Mr. SULLIVAN. That is correct, because it is better coking quality. In other words, the coke button index means a lot to the steel people as to how they can economically operate, and that might be one of the factors. In other words, they get a better coke button with your coal.

Mr. EDMONDSON. Thank you.

Mr. CHENOWETH. Mr. Williams, who is in charge of the mines of the Colorado Fuel & Iron Corp., testified before the committee and he mentioned 95 percent, but it has been revised in his letter to 75 percent of intake energy in the Pueblo steel plant is from coal. I was

surprised at that statement. It indicates coal is still a pretty important item for fuel.

Mr. SULLIVAN. Definitely.

Mr. CHENOWETH. They burn the gases off the coals somehow. I do not know just what the process is. So you can see they are making full use of the coal that they have out there.

Mr. SULLIVAN. The process you are referring to was the one that was brought up at Pueblo—the coking of that coal. In other words, driving the gases off and collecting those gases and using them for synthetic chemical production and then using the coke in the mills out there. There are a number of areas like that.

For instance, just recently coal is coming into its own in aluminum production. Previously it was mostly from water power, hydroelectric, and some from natural gas. But now coal is coming more and more into aluminum production. There is somewhat the same possibility in your territory in zinc production. That may be a new market, a place where coal actually can develop and expand.

Mr. CHENOWETH. Colorado Fuel & Iron Corp. is spending a very substantial sum each year on research along these different lines, which we have been discussing. I imagine other steel companies do the same, and also other coal companies.

The point I want to make, Mr. Sullivan, is this, and I have been impressed with it in all of our hearings. This field of coal research is not a virgin territory. There has been considerable activity for many years.

Mr. SULLIVAN. That is right.

Mr. CHENOWETH. It is a field which I think has been explored fairly well. It may be that because of lack of funds they have not gone as far as they should, but I have the impression we have made considerable progress in coal research in this country.

Mr. SULLIVAN. I do not deny that we have made progress, but it has been inadequate progress. In other words, it has not moved as fast as it should. If we are going to do something, you just cannot start tomorrow and get your research results the next day. We have got to anticipate.

One very good illustration of that particular problem is the fact that practically every fuel expert will admit today that one of our greatest concerns is the production of a high B. t. u. gas to put into the pipelines to replace natural gas that is becoming less and less plentiful as we go along.

Mr. CHENOWETH. One theory has been advanced, which I would like to have your reaction to, and that is that the Federal Government should take steps to conserve our supply of natural gas and limit its use to domestic fuel, and use coal for industrial and utility purposes, and particularly for the heavy industries.

Mr. SULLIVAN. I could not agree more, Mr. Congressman. I think very definitely that is right.

Mr. CHENOWETH. And that we are wasting our natural-gas resources in our heavy industrial use.

Mr. SULLIVAN. There is no question about it.

Mr. CHENOWETH. And that is a very profligate waste we are indulging in.

Mr. SULLIVAN. And one of these days we are going to pay for it.

Mr. CHENOWETH. We have ample reserves of coal, and we should be using them for heavy industrial purposes instead of gas.

Mr. SULLIVAN. I agree with you that we should be using coal for heavy industrial purposes.

Mr. CHENOWETH. Has the coal industry ever taken any initiative in trying to promote such a program?

Mr. SULLIVAN. Congressman, we have had, I think, in every legislative session that I can remember a bill asking that the principles of conservation be introduced into the deliberations of the Federal Power Commission in the granting of franchises or licenses to expand facilities, but we have been unsuccessful. One of our basic thoughts is that conservation should be a major consideration by the Federal Power Commission in granting applications for either installations or expansion.

Mr. CHENOWETH. What would you want the Federal Power Commission to do that they are not doing now?

Mr. SULLIVAN. Well, primarily, they should preserve the decreasing reserves of natural gas for those things that you pointed out—domestic and higher purpose special uses such as the petroleum-chemical industry, the production of those chemicals that are derived from natural gas. In other words, keep natural gas out from under boilers where it is wasted as a fuel. That is one of the primary steps in a conservation program.

Mr. CHENOWETH. Do you feel we are any closer to such a condition as that? Is the sentiment veering in that direction among your coal people themselves? Do you hear much discussion of the matter?

Mr. SULLIVAN. Yes, absolutely. Every place you go you hear that same thing—that gas under boilers is the most vicious of all competition. It is the biggest problem that we have to overcome. And regrettably, a lot of this natural gas, which is very, very valuable natural resource, is sold at dump prices for those uses. I mean they are not getting full value for the product. It is just being dumped and sold way below value.

Mr. CHENOWETH. Of course, here is a situation where research is not involved.

Mr. SULLIVAN. That is right. We are talking now purely about a marketing situation, a competitive factor. Although I want to again impress that the substitution of a manufactured high B. t. u. gas for natural gas is something that the coal industry is going to have to meet one of these days.

Mr. CHENOWETH. There is considerable work being done on that now, is there?

Mr. SULLIVAN. There is, but it should be stepped up, it should be expanded, and it should be enlarged upon.

Mr. CHENOWETH. Has the coal mining industry itself been critical of the failure of the Federal Government to provide more for research? Or do they feel the program has been inadequate and they have been unable to contribute more because of the conditions of the coal mining industry?

Mr. SULLIVAN. We definitely recognize the fact that we have reached a point where the coal industry itself is not able to make available its funds for more research. The coal industry has been spending, as you pointed out—not the coal industry entirely, but the

coal industry has participated in a $17,800,000 program, and I think it is much higher than that.

Mr. CHENOWETH. I do too, much higher.

Mr. SULLIVAN. Nevertheless, the coal industry has gone all out in supporting that program at a time when its profits were very, very low. As a matter of fact, in some cases they had no profits. But they were plowing back funds in the hope that the time would come when they would realize on it. But you cannot go on forever just plowing back.

Mr. CHENOWETH. You do not feel that the coal industry has been negligent in promoting a research program?

Mr. SULLIVAN. I do not, sir.

Mr. CHENOWETH. You do not feel they are subject to criticism?

Mr. SULLIVAN. I do not, sir. I think we have contributed within the full limits of our economic possibilities, and it is only because of the fact that the coal industry has been a nonprofit industry over these years that we have not been able to do more. We feel that something has to be done in order to get this thing started, and we think that a federally supported or at least inspired program of this sort would be a step in the right direction.

Mr. CHENOWETH. How about the different States putting up some money in this?

Mr. SULLIVAN. Absolutely.

Mr. CHENOWETH. Do you not think all of the interested parties should participate in such a program?

Mr. SULLIVAN. That is the intent.

Mr. CHENOWETH. And have a pooling of the resources?

Mr. SULLIVAN. That is the intent here.

Mr. CHENOWETH. I got the impression from your answer to the chairman that you were proposing a straight Federal research program.

Mr. SULLIVAN. This Federal fund would be made available to the foundation, but in addition there would be funds from State institutions and from State governments. In other words, it would all go into the research program, and the projects would be allocated. In other words, if a State felt they could carry on a research project and were qualified to do so, the foundation could allot to them a project and let them carry it on.

Mr. CHENOWETH. That is being done today, is it not? Different colleges and schools over the country are carrying on research programs now, are they not?

Mr. SULLIVAN. Yes, but very limitedly.

Mr. CHENOWETH. I think in Pennsylvania we found it was a half a million dollars.

Mr. SULLIVAN. A half a million dollars was appropriated in the last session. That is the first step.

Mr. CHENOWETH. And some work is being done in Virginia and some in Colorado, I believe.

Mr. SULLIVAN. The work in Virginia is within the State educational institution. I do not think they have any research fund.

Mr. CHENOWETH. That is right, it is in the State institution. You are correct in that.

Mr. SULLIVAN. Yes, sir.

Mr. CHENOWETH. Let me ask you this, Mr. Sullivan: Where does the Bureau of Mines fit into this research program picture?

Mr. SULLIVAN. I think there are definite fields in which the Bureau of Mines alone is capable of carrying on basic research. I do not know of anybody that could do some of it any better than the Bureau of Mines.

Mr. CHENOWETH. But you propose a separate board and separate commission of some kind?

Mr. SULLIVAN. That is right.

Mr. CHENOWETH. Why?

Mr. SULLIVAN. First, because of the fact that the Bureau of Mines in its operations is limited to one field. They could not go into the development of a commercial enterprise or any other market promotion. You also have marketing problems and your distribution, which they do not touch.

Mr. CHENOWETH. Do you not have your coal association doing that work now? Is not your association studying the improvement of marketing practices?

Mr. SULLIVAN. We are trying to.

Mr. CHENOWETH. That would duplicate the work of your association then, would it not?

Mr. SULLIVAN. No. As a matter of fact, this group would coordinate the whole thing so it would mesh together, and instead of being a jumble of separate pieces about which nobody knows, it would fit together and finally come out with some definite end result.

Mr. CHENOWETH. You mean the Bureau of Mines would control the supervision and regulation of this group?

Mr. SULLIVAN. No, I did not mean that.

Mr. CHENOWETH. You did not mean that?

Mr. SULLIVAN. No.

Mr. CHENOWETH. How about the State colleges engaged in this work?

Mr. SULLIVAN. I think they would work, not under the supervision, but in cooperation with the foundation. In other words, this body would coordinate. It would not dominate but would coordinate the activities of all research units.

Mr. CHENOWETH. You do not believe that the Bureau of Mines in conjunction with an association like yours and Bituminous Coal Research can do this job just as well, with the expenditure of a good deal less money?

Mr. SULLIVAN. I think it takes one central point where all of these activities could be coordinated. I do not think under our present system, with the independent agencies and your Government agencies, Federal agencies and State agencies all acting independently, that you can ever get the coordination and the cohesion that you could with one unit that would have that as its responsibility.

Mr. CHENOWETH. What relation do you have with the Bituminous Coal Research?

Mr. SULLIVAN. My personal connection?

Mr. CHENOWETH. No, the association.

Mr. SULLIVAN. The association members are among the sponsors of the Bituminous Coal Research, Inc., and we, in turn, contribute personnel and staff operations to help Bituminous Coal Research keep

their records and things of that sort. They act as an independent agency, however.

Mr. CHENOWETH. Could not this work be accomplished under that group or under their direction? That is the work they are engaged in now. Why start another new board and agency?

Mr. SULLIVAN. All right, you have got Bituminous Coal Research, you have Penn State University, you have all of these other places—Carnegie Institute of Technology, Massachusetts Institute of Technology, Batelle Memorial Institute in Columbus. You have all of those. What you suggest would have to put them all together in Bituminous Coal Research. In other words, the Batelle Memorial Institute would have to submerge itself to the Bituminous Coal Research. We are pretty sure they wouldn't want that.

Mr. CHENOWETH. Would they submerge themselves to any other group?

Mr. SULLIVAN. I do not think it would be necessary to submerge them. But if you could get them to coordinate and work with an agency—and they would be more readily inclined, I think, to work with a unit that was set up by the Federal Government rather than one that was set up independently. There are those little differences that would arise.

Mr. CHENOWETH. I was just trying to think what would be done if we eliminated the Federal Government from the picture completely. The industry itself would be doing what they are doing now in a very substantial way to find new uses for coal. I just wonder if the picture justifies the expenditures which you say you are going to request, something like $150 million.

Mr. SULLIVAN. Well, if you accomplish everything you hope to accomplish, it will take that and more.

Mr. CHENOWETH. There has been a feeling for some time that we should produce synthetic fuel from coal and compete with petroleum, but I think they have come to the conclusion that cannot be done economically at this time. I was surprised to hear testimony before the committee that in Germany they have abandoned the production of synthetic liquid fuel. During the war when they had to do it, they did produce fuel from coal.

Mr. SULLIVAN. That is right.

Mr. CHENOWETH. But that does not offer any possibility for the coal regions.

Mr. SULLIVAN. I do not think so; no, sir.

Mr. CHENOWETH. That has been the impression we have had in our part of the country particularly. We have talked about synthetic fuel plants for many years, but the immediate possibilities are not very encouraging.

Mr. SULLIVAN. My information is the same as yours—that right at this time this does not appear to be economically feasible.

Mr. CHENOWETH. I just wonder what benefits we would derive from the expenditure of this amount of money you propose, either immediate or, say, within a reasonable period, over and above what we are getting from the expenditure of 17 or 20 million dollars now.

Mr. SULLIVAN. I can think of another project. For instance, today most coal mines have rather highly mechanized and very efficient preparation plants. Most of them use water-washing plants where

they wash the coal, particularly the fine coals. Now there is a great waste of coal in the slurry, and so far we have not been able to devise the means of recovering this very high quality, you might say, pure carbon particles that are carried over in the wash water. We could gain if we could devise a means of recovering that coal from the wash water.

Mr. CHENOWETH. Efforts have been made to recover the coal; have they?

Mr. SULLIVAN. They are working on it, yes, sir; but so far it is a pretty expensive project.

One of the big problems that we find, Congressman, is that in our research projects, where they are undertaking, you might say, individually, is we get up to a certain point and then we find out that it involves so much money that we cannot carry it on. We need somebody else to come in there and at least give us a lift.

Mr. CHENOWETH. There has been no way to pool the resources and go ahead with it?

Mr. SULLIVAN. That is right.

Mr. CHENOWETH. In the industry itself you have not found any way to accomplish that?

Mr. SULLIVAN. No, sir.

Mr. MANASCO. Mr. Chairman, if I may make a statement at this point.

Mr. CHENOWETH. We will be glad to hear from you.

Mr. MANASCO. I think all of us recognize that the Federal Government has spent every 10 years since 1930 on programs that resulted in the displacement of coal more money than the entire coal industry is worth today. I think we will all agree on that.

I do not know what the appropriation for the Atomic Energy Commission is going to be this year, but they are spending millions of dollars every month to displace coal. That is going to be the end result, and that is going to be done with the subsidy from the taxpayers of the United States.

We realize now what a war could cause in the displacement of oil we are getting from foreign sources, and if our national security is to survive, you are still going to have to have some kind of fuel to power our economy. We do not know how long our oil supply is going to last. We do know approximately how long coal is going to last.

So with the thousands and thousands of men we put out of work with Federal funds, it seems to me—and my friend Ed Chenoweth knows that I am pretty conservative—that we could spend several million dollars monthly to try to protect the internal security of this country and the jobs of our people.

Mr. CHENOWETH. Would you agree with me that very substantial sums have been spent for that very purpose already?

Mr. MANASCO. It is peanuts, $17 million a year. Du Pont will spend more than that on research to develop a certain type of synthetic.

The Federal Government has spent billions of dollars in the construction of hydroelectric dams, that have displaced coal. They have made it impossible for coal itself to do the research that they recognize is necessary.

All of these atomic reactors they are building are calculated to displace coal. They said they cannot find out with a 500-kilowatt and

5,000-kilowatt reactor, that they have to build a 100,000 or 200,000-kilowatt reactor. That is your money, that is my money, that is coming out of the taxpayers of this country to displace an industry that has already been badly hurt. I can say the Federal Government has done as much to hurt the coal industry by certain programs they have been in as any competing fuel.

Mr. CHENOWETH. If we had had additional money to spend in recent years, do you think we would have been able to put some of these miners back to work?

Mr. MANASCO. I do not think there is any question about it.

Mr. CHENOWETH. You would think we could improve and increase the markets?

Mr. MANASCO. I think you could increase the markets tremendously. I think you could increase the efficiency of our distribution system.

One thing, we were talking about uses of coal. Right now we cannot complain too much about certain practices that have been going on in this country by domestic producers of competing fuels, but you are going to see in the next 10 years' time in certain areas of this country over 50 percent of the new houses that go up are going to be heated by a heat pump which uses electricity only and is air-cooled in the summer by that same device, without having to flip a switch. That is going to increase the uses of coal. But if we are destroyed before we get to enjoy that period, it will be too late.

You cannot open up a coal mine today like you could when I worked in the coal mines—you and your brothers and your father go out and start digging in the bank and mining coal. You cannot do that any more.

Mr. CHENOWETH. The problem of the coal-mining industry, as I see it, is to find some way to keep operating until the day comes, as you say, when there will be a great demand for this electricity. Right now the coal operators are facing serious problems and are unable to meet the competition and have had to drop out.

Mr. MANASCO. A lot of it is a result of the billions of dollars the Government has been spending to displace coal.

Mr. CHENOWETH. I think you will agree that some of it has been a natural sequence, that railroads have gone to diesels, and the domestic heating has gone to gas and will not go back to coal.

Mr. MANASCO. They will go back to the heat pump and coal will benefit.

Mr. CHENOWETH. There is always that possibility. We are already making some progress along the lines we are talking about.

I am very much intereted in your observations. I want to do something personally, and every member of the committee does, to help the coal-mining industry.

Mr. MANASCO. I believe you will find this year that the Atomic Energy Commission on research and development of atomic power will spend more money than the entire profits of the coal industry since 1920. That might be a little high, but I think the figures bear that out.

Mr. CHENOWETH. I think that is very possible.

Mr. SULLIVAN. I would like to point this out, Congressman: That in the year 1954 the chemical industry spent more money on research than the entire gross profit of the coal industry combined.

Mr. CHENOWETH. I have no doubt about it at all. But do you feel that the coal people themselves have been negligent, if that is the word, or perhaps disinterested in this whole program?

Mr. SULLIVAN. No; I do not think so.

Mr. CHENOWETH. Certainly, a man who has his money in a coal mine will do everything he can to keep that mine open.

Mr. SULLIVAN. I think he has been handicapped in not having had the money with which to do the things he felt was necessary.

Mr. CHENOWETH. I am sure you will recognize—along the lines Mr. Manasco and I were talking about—that if he had an unlimited amount of money he could not have avoided the loss of most of this market. It is a natural——

Mr. SULLIVAN. A natural attrition.

Mr. CHENOWETH. Natural attrition. I think you can recover some of this market.

Mr. SULLIVAN. As a matter of fact, it has not been 3 weeks ago in the city of Indianapolis that the Indianapolis Power & Light Co. published a full-page advertisement stating that they were now ready to take contracts for home heating by electricity, by panel heating and by cable heating built into the house. They are willing to take on contracts. That is a new development. Indianapolis is in the moderate-temperature belt and they have their cold seasons.

That is a progressive step, but it is not going to be universal immediately. I mean it is not going to be an overnight bonanza.

Mr. CHENOWETH. Oh, no.

Mr. SULLIVAN. It is something to look forward to.

Mr. CHENOWETH. That requires cheap electricity?

Mr. SULLIVAN. It requires cheap electricity.

Mr. CHENOWETH. What does that electricity sell for in the Indianapolis area?

Mr. SULLIVAN. I do not know what the rate is there.

Mr. CHENOWETH. Is it produced by coal?

Mr. SULLIVAN. It is coal produced. They have their plants located down on the Wabash River.

Mr. CHENOWETH. Mr. Chairman, I think that is all. Thank you, very much.

Mr. EDMONDSON. I would like to ask the witness if it would be possible to supplement some information that the Bureau of Mines promised to supply to us this morning. We asked them for figures from 1940 to the present on the research expenditures by the Bureau of Mines, appropriations for that purpose, and the number of personnel involved in it. I wonder if we could ask the National Coal Association, if it is possible, to give us the figures on the known or estimated income and profits for the coal industry for each year beginning in 1940, and also the amount known to have been devoted or estimated to have been devoted to research during each of those years, and, if it is possible, the number of people known to have been employed in research during each of those years.

I realize that may be an impossible assignment. But, to the extent that it can be supplied, we would be very appreciative to have those figures to supplement the information we are going to have from the Bureau of Mines for that same period.

Mr. SULLIVAN. I do not know of any source from which those figures would be available for the coal industry as a whole. You could

get it for the public-owned companies, but I doubt if there is any central location that you could get that information for the coal industry.

Mr. EDMONDSON. This question is also suggested by our consultant, Mr. Soule. I am going to ask him to pass it to you for your own use.

Mr. SULLIVAN. We will cooperate to the fullest extent possible, Mr. Chairman.

Mr. EDMONDSON. I will ask unanimous consent that the information may be inserted in the record. Without objection, it is so ordered.

(The information follows:)

SUPPLEMENTARY STATEMENT OF WITNESS G. DON SULLIVAN APPEARING FOR HARRY LAVIERS, CHAIRMAN, COMMITTEE ON RESEARCH, NATIONAL COAL ASSOCIATION

At the time of the Special Subcommittee on Coal Research hearing in Washington on March 26, the above-indicated witness was requested by Chairman Edmondson (see p. 138, stenographic transcript of hearings of March 26, 1957, by Veley Reporting Co.) to supply information regarding "figures on the known or estimated income and profits for the coal industry for each year beginning in 1940 and also the amount known to have been devoted or estimated to have been devoted to research during each of those years, and if it is possible, the number of people known to have been employed in research during each of those years."

Submitted herewith as a part of this supplementary statement is table A prepared by the National Coal Association on September 4, 1956, showing "net income and Federal income taxes of corporations engaged in bituminous coal mining as shown by income-tax returns." This table gives the information from the year 1917 through 1953. The year 1953 is the last available annual statistics that have been compiled by the United States Bureau of Internal Revenue.

For the purpose of comparison, we indicate herewith the total coal production in millions of tons for the years 1940 through 1953:

Year:	*Production (million tons)*	Year—Continued	*Production (million tons)*
1940	460.7	1947	630.6
1941	514.1	1948	599.5
1942	582.6	1949	437.8
1943	590.1	1950	516.3
1944	619.5	1951	533.6
1945	577.6	1952	466.8
1946	533.9	1953	457.2

An analysis of the annual coal production figures compared with the column showing "Profit or loss after Federal taxes," as shown on table A, shows that there is a relationship between the total production and the profit after taxes. Of course, there are some deviations from the general trend, but in the main, when production increased the amount of profit after taxes also increased.

Another rather enlightening comparison, based on table A, is the relationship of the number of companies reporting net income compared with the number of returns filed for the year from 1940 to 1953, inclusive. These percentages are as follows:

Year:	*Percent*	Year—Continued	*Percent*
1940	38.5	1947	74.6
1941	49.9	1948	66.3
1942	52.2	1949	49.9
1943	60.1	1950	55.5
1944	58.8	1951	50.2
1945	59.3	1952	47.3
1946	61.8	1953	40.2

It will be noted that the same general relationship exists between the number of companies reporting net income and the total annual production as exists between the total annual production and the dollar amount of profit after Federal taxes, as shown on table A.

The deduction which must be drawn from the various analyses of table A is that as total annual production in the coal industry fluctuates downward,

the total amount of profit after Federal taxes, as well as the number of companies that show a profit, also decrease.

As has been contended, the coal industry must have a stable production level of more than 500 million tons annually if it is to meet its responsibilities which are inherent in official Government projections as to the total share of our national energy load which must be borne by coal in the years ahead.

It is our contention, previously expressed, that a well-financed, properly administered research program for the coal industry can do much to make possible this stabilized production level.

In supplement to table A, we also submit in series tables B, C, D, E, and F, all of which are taken from the reports of the National City Bank of New York, showing financial data for those companies of public record for which information is available through the Securities and Exchange Commission or other sources:

Table B, Coal companies
Table C, Chemical products companies
Table D, Lumber companies
Table E, Stone and clay products companies
Table F, Petroleum production and refining companies

These industries were selected because of the definite relationship between their operations and the coal industry. The data as shown on these tables are for the years 1941 to 1955, inclusive, with the exception of petroleum production and refining companies where the information is shown from 1950 to 1955, same being the only statistical information that was collected.

The purpose of using these tables is to direct particular attention to the reported net income of the companies in the various industries as a percent return on their net worth.

In table B we would direct attention to the fact that with the exception of 1947 and 1948, the two post-World War II recovery years, the reported coal companies have never shown a return on net worth of more than 10 percent. The highest for any year in the 1941–55 span was 16.1 percent in 1948. We would again call attention to the relationship which is indicated in this table, as in other tables referred to, that exists between total annual production and the percent rate on net worth. In general, as annual production increased the percent return on net worth also increased.

After analyzing table B it is interesting to note that in tables C, D, E, and F, for the comparable industries, in all 4 of these industries there are only 6 reported years in which the percent of return on net worth for those industries was less than 10 percent, whereas in the coal industry 13 years out of the total of 15 showed a net return of less than 10 percent.

The analysis of these figures should further emphasize the fact that while some other industries, such as the chemical industry, can afford to spend millions of dollars on industry research their percent of return on net worth gives them a financial advantage which is certainly not enjoyed by the coal industry, as shown by the comparisons made herein.

It is with regret that we are unable to furnish information requested by the committee with regard to the expenditures for research within the coal industry and the number of personnel engaged in research work. Information on these subjects is not available except such scattered computations or estimates as may have been made from time to time by various agencies. The coal industry itself has not collected or maintained statistics on such information. The only information available which even partly answers the question is that contained in Bureau of Mines Information Circular 7754, copy of which is attached hereto for committee information. In table 2, page 4, of that report is contained an analysis of the various types of coal-research projects carried on during the year 1955 by the various agencies. In this table is shown the total amount of money spent and the number of man-years and the percent of total manpower engaged in these various research projects. However, there is no breakdown as to either the amount of money or the amount of manpower expended by each of the individual units carrying on the research projects.

We also submit herewith reprint of an article distributed by the Bituminous Coal Research, Inc., entitled "Coal Research in 1956." While much of the material in this article is a repetition of the information contained in the Bureau of Mines circular, nevertheless there is additional facts that we feel will be of interest to the committee.

The same holds true, so far as overall research and development in the United States is concerned, as reported by the National Science Foundation's Bulletin No. 1, dated December 1956, which is attached herewith. This shows on page 1 the sources of funds and the expenditure of funds for research activity in the four major sectors of Federal Government agencies, industry-oriented organizations, colleges and universities, and other institutions.

The National Science Foundation study shows that while more than 50 percent of the total funds came from Federal Government agencies, only 20 percent of the funds were expended by Government agencies. Whereas approximately 40 percent of the total funds devoted to research came to industry, almost 75 percent of the funds were expended by industry organizations.

As previously indicated, we regret that more complete information on research expenditures within the coal industry are not available. However, this may be another indication as to the need for such a program as has been recommended by the National Coal Association wherein a central independent Government agency should be set up to supervise and coordinate research activities. Had such an organization been in existence prior to the time that the House Interior Subcommittee held its hearings, we feel sure that the information requested would have been easily available. It is our hope that in the future such an organization as has been recommended in Mr. LaViers statement will make possible the carrying out of a program so that at all times Government and industry can cooperate with full knowledge available on all phases of research activities in coal.

TABLE A.—*Net income and Federal income taxes of corporations engaged in bituminous coal mining as shown by income tax returns*

[Money figures in thousands]

Year	Number of returns	Number reporting net income	Number reporting no net income	Net income of companies showing income	Deficit of companies showing loss	Net income or loss	Federal taxes	Profit or loss (—) after Federal taxes	Production (million tons)
1917	1,234	1,149	85	$204,564	646	$203,918	$70,962	$132,956	551.7
1918	1,234	1,106	128	150,095	1,248	148,847	65,764	83,083	579.3
1919	1,234	817	417	72,203	9,943	62,260	12,934	49,326	465.8
1920	1,234	1,152	82	251,026	1,658	249,368	76,224	173,144	568.6
1921	1,234	503	731	59,164	30,275	28,889	10,559	18,330	415.9
1925	3,650	1,065	2,585	40,463	62,826	(−22,363)	4,517	(−26,880)	520.0
1928	2,705	863	1,842	33,477	57,985	(−24,508)	3,442	(−27,950)	500.7
1929	2,469	934	1,535	40,069	51,891	(−11,822)	4,000	(−15,822)	534.9
1930	2,239	781	1,458	25,077	67,148	(−42,071)	2,637	(−44,708)	467.5
1931	2,095	582	1,513	9,957	57,702	(−47,745)	1,039	(−47,784)	382.0
1932	1,864	289	1,575	5,956	57,123	(−51,167)	777	(−51,944)	309.7
1933	1,851	396	1,455	7,243	54,792	(−47,549)	1,029	(−48,578)	333.6
1934	2,017	660	1,357	23,634	31,218	(−7,584)	3,308	(−10,892)	359.3
1935	1,975	591	1,384	19,566	35,142	(−15,576)	2,750	(−18,326)	372.3
1936	1,945	590	1,355	25,183	28,493	(−3,310)	3,214	(−6,524)	439.0
1937	1,815	539	1,276	22,289	23,066	(−777)	3,208	(−3,985)	445.5
1938	1,887	363	1,524	11,112	37,779	(−26,667)	1,661	(−28,328)	348.5
1939	1,820	505	1,315	18,257	24,425	(−6,168)	2,844	(−9,012)	394.8
1940	1,756	676	1,080	30,013	15,617	14,396	6,593	7,803	460.7
1941	1,722	859	863	56,831	14,180	42,651	19,065	23,586	514.1
1942	1,737	906	831	77,042	9,127	67,915	33,790	34,125	582.6
1943	1,623	975	648	103,153	6,996	96,157	49,244	46,913	590.1
1944	1,584	932	652	101,000	8,263	92,737	48,926	43,811	619.5
1945	1,544	915	629	81,412	10,119	71,293	35,613	35,680	577.6
1946	1,640	1,013	627	89,553	9,016	80,537	29,975	50,562	533.9
1947	1,837	1,371	466	264,751	6,093	258,658	90,224	168,434	630.6
1948	2,163	1,434	729	318,597	8,971	309,626	113,038	196,588	599.5
1949	2,070	1,033	1,037	122,803	25,480	97,323	43,038	54,285	437.8
1950	1,988	1,104	884	180,350	17,162	163,188	69,423	93,765	516.3
1951	1,813	912	901	139,464	25,769	113,695	57,096	56,599	533.6
1952	1,665	789	876	88,263	19,069	69,194	35,713	33,481	466.8
1953	1,573	632	940	72,747	31,192	41,555	28,825	12,730	457.2

Source: Statistics of Income, Pt. 2, U. S. Bureau of Internal Revenue.

TABLE B.—*Financial data on leading coal companies, 1941–55* [1]

Year	Number of companies	Net income (thousands of dollars)	Percent return on net worth [2]	Year	Number of companies	Net income (thousands of dollars)	Percent return on net worth [2]
1941	30	20,623	3.8	1949	27	49,002	7.2
1942	28	23,026	4.3	1950	31	62,032	8.7
1943	25	23,697	4.3	1951	29	61,941	9.0
1944	26	30,819	5.7	1952	24	49,017	6.6
1945	23	23,858	4.2	1953	27	29,030	3.5
1946	24	37,316	7.6	1954	21	12,565	1.7
1947	33	66,191	11.4	1955	21	40,961	5.6
1948	30	99,225	16.1				

[1] Bituminous and anthracite.
[2] Net worth carried on books far below present-day values.

Source: National City Bank, New York, N. Y.

TABLE C.—*Financial data on leading chemical products companies, 1941–55*

Year	Number of companies	Net income (thousands of dollars)	Percent return on net worth	Year	Number of companies	Net income (thousands of dollars)	Percent return on net worth
1941	49	230,691	13.2	1949	65	543,411	17.1
1942	51	190,856	10.4	1950	62	743,574	21.4
1943	54	187,718	10.5	1951	64	628,332	16.3
1944	57	214,760	10.4	1952	65	599,830	13.5
1945	59	216,701	10.2	1953	65	645,584	13.2
1946	60	320,672	14.8	1954	61	765,142	14.4
1947	65	416,110	17.2	1955	61	999,367	17.7
1948	65	494,063	16.9				

Source: National City Bank, New York, N. Y.

TABLE D.—*Financial data on leading lumber companies, 1941–55*

Year	Number of companies	Net income (thousands of dollars)	Percent return on net worth	Year	Number of companies	Net income (thousands of dollars)	Percent return on net worth
1941	23	15,795	15.3	1949	28	56,411	10.7
1942	23	11,696	11.4	1950	25	96,083	17.0
1943	20	8,156	8.9	1951	25	98,088	16.0
1944	21	9,243	9.0	1952	26	81,573	11.4
1945	24	20,165	6.8	1953	28	82,378	10.3
1946	21	23,065	21.1	1954	27	79,928	9.7
1947	29	69,120	33.1	1955	27	125,149	14.2
1948	28	101,584	23.1				

Source: National City Bank, New York, N. Y.

TABLE E.—*Financial data on leading stone and clay products companies, 1944–55*

Year	Number of companies	Net income (thousands of dollars)	Percent return on net worth	Year	Number of companies	Net income (thousands of dollars)	Percent return on net worth
1944	38	22,499	6.4	1950	46	144,831	18.5
1945	37	29,047	6.8	1951	43	125,994	14.9
1946	41	63,622	13.7	1952	43	116,804	12.5
1947	40	92,916	17.8	1953	49	122,483	11.8
1948	45	118,295	18.2	1954	48	143,957	13.2
1949	46	101,225	13.7	1955	48	194,647	16.4

Source: National City Bank, New York, N. Y.

TABLE F.—*Financial data on leading petroleum production and refining companies, 1950–55*

Year	Number of companies	Net income (thousands of dollars)	Percent return on net worth	Year	Number of companies	Net income (thousands of dollars)	Percent return on net worth
1950	91	1,875,150	15.2	1953	94	2,423,985	14.7
1951	91	2,247,118	16.6	1954	92	2,413,900	13.8
1952	95	2,174,935	14.5	1955	92	2,770,552	14.2

Source: National City Bank, New York, N. Y

Do you have any questions of the witnesses, Mr. Saylor?

Mr. SAYLOR. Yes, Mr. Chairman. The questions I am going to ask probably have a little different connotation than those of my good friend, Judge Chenoweth, because I am wondering whether or not the program which has been outlined in Mr. Laviers' testimony is broad enough.

The reason I say that: While, on a first appraisal, the figures Mr. Laviers indicates in his statement will be more money than has ever been spent before, I think we must realize that it is costing more and more to produce coal. I wonder whether or not there is enough money being provided in this proposal of Mr. Laviers' to take care of costs in the latter half of the 20th century when we are going to have to develop new areas of coal mining.

Mr. SULLIVAN. I think that would be very questionable, Congressman. I think what is proposed here is only a reasonable approach to the problem. I do not think this is all comprehensive in any manner of means.

Mr. SAYLOR. But it seems to me, from my knowledge of the industry, its needs, its future, from the studies I have made, that, if the time comes that we are going to have to depend principally on coal for our energy supplies, we are going to have to actually conserve coal. I know that in 1957, when we think of the expanse of areas that have coal, and the tremendous deposits of coal you can find, it seems almost phenomenal that anybody would even think of conserving coal. And yet I think, Mr. Sullivan, that is one of the things this committee is going to have to investigate, and that is the reason I wonder whether or not we have provided enough money to look into the overall picture. Certainly, when the time comes that there is this increased usage and consumption of coal, the reserves that have been estimated to last hundreds and hundreds of years, instead of being there as a potential will be gone. In other words, when they are used they are gone.

Mr. SULLIVAN. That is right.

Mr. SAYLOR. Even though these figures seem high, I think, like you do, it might be the absolute minimum that should be used—not as a ceiling but rather as a floor that should be put under the research that the industry should be carrying on. Now it is my understanding from reading Mr. Laviers' testimony that he suggested this amount in addition to what is being spent by the industry itself; is that right?

Mr. SULLIVAN. Absolutely, or by any other source.

Mr. SAYLOR. Or any other source at all. And that the purpose of this expenditure which is recommended by Mr. Laviers should be to

create a board which would have funds to do some research on its own and to coordinate the research which is being done by the industry and other sources. Is that right?

Mr. SULLIVAN. I would like to modify your statement there, in that this foundation would not carry on research of its own in research centers. It would let contracts, and make agreements of that kind.

Mr. SAYLOR. I gathered that Mr. Laviers did not intend by his statement to say the foundation would carry on any research itself.

Mr. SULLIVAN. That is right.

Mr. SAYLOR. Actually, it would be more of a board which would direct research through contracts.

Mr. SULLIVAN. That is right.

Mr. SAYLOR. It would determine what fields were feasible.

Mr. SULLIVAN. That is right.

Mr. SAYLOR. And, after consultation with the universities and groups that are engaged in research, would let contracts to experiments in certain fields?

Mr. SULLIVAN. That is right, and would allocate the federally appropriated funds to the units to carry on their research.

Mr. SAYLOR. There is one other thing I wish, Mr. Sullivan, you would provide for us, and I think this can be made available. It has been referred to a number of times in our testimony and other places.

Could you give us an up-to-date estimate of what it would cost to put a mine into production, together with the length of time it would take to start the coal moving to the tipple and actually begin to produce coal on a commercial basis.

I think that important, and the reason I ask you for that is this: that I believe from the various reports which the last two Presidents have had referred to them, people recognize the importance of coal, and yet when you think of coal you do not think of it as in place.

Mr. SULLIVAN. That is right.

Mr. SAYLOR. You think of it as in a hopper ready to be delivered some place to use.

Mr. SULLIVAN. That is right.

Mr. SAYLOR. And it just does not happen that fast. It takes some planning and some foresight, too, and a lot of hard work from the men, investment of capital of the company, and a program to get a piece of property into a coal-producing mine. Therefore, from a defense angle, I think we should have that figure.

Mr. SULLIVAN. Mr. Congressman, before you came into the room I mentioned the fact that one of the great concerns of the coal industry today is the development of capital with which to put into operation these new facilities needed if we are going to deliver this projected 800 million tons of coal in 1975, or whether that figure might be.

Coal today is a processed product. It is no longer possible for a father and son to go out into a hillside with a wheelbarrow and start up a little mine of their own to supply their own needs, and those of their neighbors. It is a big operation and it takes a lot of money.

Today, the figures that we have, I think the last mines that were built cost right around $7 to $9 per ton annual capacity. I know of one mine that is now in the process of construction, and the figure is running right around $10 to $11 per ton of annual production. That means if you have a million ton mine you are going to have $10

million involved, and it is going to take you about 2 years to get it into operation.

Mr. SAYLOR. That is all the questions I have, Mr. Chairman.

(Information requested by Mr. Saylor follows:)

SUPPLEMENTARY STATEMENT OF G. DON SULLIVAN, NATIONAL COAL ASSOCIATION REPRESENTING MR. HARRY LAVIERS, CHAIRMAN OF NCA COMMITTEE ON RESEARCH

At the March 26, 1957, hearing of the Special Subcommittee on Coal Research of the House Interior and Insular Affairs Committee, Congressman Saylor made the following request: "Could you give us an up to date estimate of what it would cost to put a mine into production, together with the length of time it would take to start the coal moving to the tipple and actually begin to produce coal on a commercial basis?"

In response to this question, we have surveyed seven companies in the industry who have within very recent months either completed or started work on new coal mining projects. The company estimates of costs per ton of annual capacity ranged from $6.50 for a medium-size operation with minimum installation to as much as $9 or $9.50 for a conventional mine but with highly mechanized installations. In 2 instances we found that more elaborate coal-mining plants were being installed at costs ranging from $10 to $10.20 per ton of annual capacity.

The following excerpt from a statement given by Mr. Carl R. Mabley, Jr., president of the Island Creek Coal Sales Co., Huntington, W. Va., before the 28th Fuel Engineering Conference held in Cincinnati, Ohio, on March 18, 1957, is pertinent.

With reference to coal industry's capital requirements for expanded production facilities, Mr. Mabley said:

"While complete statistics on the subject are not available, nevertheless what can be learned indicates that the industry's earnings are less than 50 cents per ton before taxes and not over 35 cents per ton after taxes. This return of only 3½ to 4 percent on a capital investment of $8 to $10 per ton of annual production is, of course, wholly inadequate to attract new capital and, even assuming no dividends, would produce not over $175 million per year of earnings.

"In 25 years this rate will produce little more than half of the $8 billion to $10 billion minimum capital needs. To attract new capital, we are told, our industry must develop earnings of at least 20 percent before depreciation and taxes which, on a capital investment of $8 to $10 per ton of annual production, would be $1.60 to $2 per ton. This would mean approximately $1.25 to $1.40 per ton after depreciation and before taxes—or between 2 and 3 times the current rate."

Mr. CHENOWETH. May I ask one other question?

Mr. EDMONDSON. Mr. Chenoweth.

Mr. CHENOWETH. The prospects for the coal industry are improving, are they not, either because of the research program or in spite of the lack of it?

Mr. SULLIVAN. I would say this: That the upturn in the coal industry in the current period has been due primarily to the increase in coal exports. In other words, the volume of coal that is going abroad, plus the upturn in electric utility consumption. Aside from that we do not have much of an upturn in business.

This year, up until last week the industry's production is about 6 percent, a little better than 6 percent, off from last year.

Mr. CHENOWETH. It is declining this year?

Mr. SULLIVAN. It is declining as compared with last year.

Mr. CHENOWETH. How do you account for that?

Mr. SULLIVAN. There are a number of reasons. One is the export tonnage is a little bit off currently.

No. 2 is a lot of the utilities are using out of their stockpiles rather than buying coal in the market. And the industrial level has not increased; there is a little slackening there. It is seasonal. What we call degree days are off so far as domestic or commercial heating is concerned. So generally it is the demand level, primarily exports and the use of stockpile.

Mr. CHENOWETH. The stockpiles will have to be replenished one of these days, will they not?

Mr. SULLIVAN. Well, that all depends upon the attitude of the purchasing agent. Mostly, stockpiles were built to tide them over at a time when there might be distress in the industry, and there is more and more complacency now that those periods are not——

Mr. CHENOWETH. Stockpiles will not furnish a supply forever. They will have to come to the market sometime.

Mr. SULLIVAN. No. In other words, the amount of coal that is kept in stockpiles might be reduced. They will have to maintain some coal in stockpiles at all times.

Mr. CHENOWETH. Thank you very much.

Mr. EDMONDSON. Mr. Sullivan, we certainly appreciate your testimony.

Mr. Manasco, do you have anything you want to add?

Mr. MANASCO. I wanted to get unanimous consent for Mr. Sullivan to revise and extend his remarks, and for me also to revise what feeble remarks I made, and also permit Mr. Sullivan to add any additional material that might shed some light on this which he did not have at hand at the time the questions were asked.

Mr. EDMONDSON. We will be very glad to receive any additional material he wants to supply to us and we have found what he has already supplied to be most useful.

If there is no further testimony from the representatives of the National Coal Association, we thank you for your fine help and cooperation to this committee. We hope we wind up with something helpful and constructive in this field.

Certainly I think every man on this committee who has been out in the field and seeing the conditions in the industry firsthand is thoroughly sold on the need for something along the lines of your recommendation to this committee.

Mr. MANASCO. Thank you, Mr. Chairman. On behalf of Mr. Sullivan and myself, we thank the committee for the kindness it has extended to us.

We have been trying for years to get the attention of the Government and the American people of the problems facing the coal industry, and we feel your committee is turning the spotlight on them. We feel confident some great benefits not only to the industry, the employees, but to the economy and the national security of our country will come from your recommendations.

Mr. EDMONDSON. I certainly hope your confidence is vindicated in that regard.

Mr. SULLIVAN. Mr. Chairman, I would like to say that the National Coal Association Committee on Research has been particularly impressed with the ability of this subcommittee to understand the industry's problems. The remark was made to me by a man who has had quite a bit of experience in Government and congres-

sional appearances that he has not found in his lifetime a subcommittee that has a better understanding of the problem which they were trying to solve than this subcommittee.

Mr. EDMONDSON. That is very kind, and nobody on this subcommittee is going to get mad about that being said at all.

Mr. SULLIVAN. Well, I did not raise any objection myself.

Mr. EDMONDSON. I understand Mr. Prosser, who spoke briefly here earlier today, would like to make a comment on some of the testimony given with regard to the railroads and their place in this recommended program. Mr. Prosser.

STATEMENT OF FRED PROSSER, GENERAL COAL TRAFFIC MANAGER, NORFOLK & WESTERN RAILWAY

Mr. PROSSER. Mr. Chairman, I would just like to make one statement.

I am Fred Prosser, general coal traffic manager of the Norfolk & Western Railway.

I would like to make one observation here on Mr. Laviers' proposal on account of the railroad's vital interest in anything pertaining to coal, especially the coal-carrying railroads.

I do think if there is a committee or commission, whatever you want to call it, to administer any fund that might be put up by the Government that consideration should be given to having a railroad representative on that.

Now the railroads are making a great effort to come back. I will grant you today they have gone to diesels to a large extent, but we realize today that coal, after all, is the most economical fuel to use and we are making an effort to come back to coal on the railroads.

Mr. EDMONDSON. As I understand it, your railroad is using a good deal of coal.

Mr. PROSSER. What is that?

Mr. EDMONDSON. Is not your railroad one of those which still have coal locomotives?

Mr. PROSSER. We use about 1,800,000 tons of coal annually now for our locomotives. We have dieselized to some extent because of the fact that when this increase in traffic came in the latter part of 1955 we needed motive power, and you cannot buy a steam locomotive—as you know, nobody in the United States is making them—but you can buy a diesel, so to speak off the shelf.

And because of the fact we needed motive power, we were forced into dieselizing. It was not to our liking.

Mr. EDMONDSON My own personal inclination is to be most sympathetic to your own wishes on this. However, I was a little interested in what Mr. Sullivan said about the position of the American Association of Railroads on the point. I would suggest that you get together with your association on that question and see if the railroad industry at large cannot be united on that position.

Mr. PROSSER. I think we are. I think I can speak for the American railroads as a whole on that—that we would like to be considered to be represented on it.

Mr. EDMONDSON. Thank you very much.

Mr. SULLIVAN. May I make a supplementary statement there?

Mr. EDMONDSON. Yes, sir.

Mr. SULLIVAN. May I supplement the witness' remarks by saying that we certainly have no objection whatsoever, and would go along wholeheartedly with Mr. Prosser's remarks about the desire of the coal-carrying railroads to participate. We would welcome their participation We have no objection. Our only thought was the railroads did not want to be identified with the program in that they did not want transportation involved, in other words.

Mr. PROSSER. We do not want transportation involved. We went on record on that. But we do not think that is part of this coal-research program, transportation, because transportation is too well controlled now by the Government.

Mr. EDMONDSON. Of course I think we had some testimony from some railroad representatives that they would not object to Government research on this question of a locomotive that would use coal.

Mr. PROSSER. That is true.

Mr. EDMONDSON. So it would just depend on the direction the research took.

Mr. PROSSER. What I am talking about—we at the present time compete against water transportation, which is subsidized; we compete with trucks, which are subsidized as far as the highways go; and we would object to any of this money being spent for any competing forms of transportation.

Mr. EDMONDSON. I think your objection would be entirely understandable, Mr. Prosser

Mr. PROSSER. Thank you.

Mr. EDMONDSON. May I ask at this time if there are any other witnesses in the room who would like to be heard in connection with the hearings of this subcommittee?

(No response.)

Mr. EDMONDSON. Then the subcommittee will stand in recess until further call of the Chair.

(Adjourned at 3:50 p. m., subject to call of the Chair.)

(Committee Note: Following completion of hearings, the following letter was submitted for the record:)

HOUSE OF REPRESENTATIVES,
Washington, D. C., May 1, 1957.

Hon. ED EDMONDSON,
Chairman, Subcomittee on Coal Research,
House Interior and Insular Affairs Committee,
Washington, D. C.

DEAR MR. CHAIRMAN: Recently there has come to my attention a new use for the important resource, coal. If I remember correctly, this use, the grinding of coal and its mixture with oil and diesel fuel for use in railroad locomotives, was not brought to our attention while the committee was holding hearings. A recent release from the Denver Post suggests that this new use has been found to be most effective and has great potentialities. I submit the newspaper article from the Denver Post with these few remarks for inclusion in the record of the hearings of our special committee.

I am,
Sincerely,

WAYNE.

Could revitalize industry

Atom-Coal for Diesels Tested by Denver & Rio Grande Western

By Gene Lindberg

Finely ground Colorado coal is being irradiated with atomic energy, mixed with oil and burned as diesel fuel in experiments now underway in the Rio Grande Railroad's research laboratories here.

Ray McBrian, engineer in charge of research, described the atom-coal tests Friday in discussing a special report to the annual meeting of the railroad's directors and stockholders.

McBrian said the tests so far have proved it feasible to add some 5 percent of low-cost coal to each gallon of expensive diesel oil.

"Last year the Rio Grande burned some 40 million gallons of diesel oil," he said. "An average price cut of just 1 cent a gallon there could mean an annual saving of $400,000 for our line alone."

If successful in large-scale tests, the new system could mean revitalization of the western coal industry with the fuel of the now-gone steam lomotives returning to power modern diesels.

So far, McBrian said, the experiments have been conducted with a 5-horse-power Whitte diesel engine formerly used in a caboose to generate electricity.

Full-scale tests now are being arranged.

"This idea of burning coal in a diesel is just one more unexpected development to pop up out of our atomic locomotive studies," McBrian said. "The atomic energy, in this case, isn't used to run the diesel engine. Instead, it is used to break up fine grains of coal into such tiny particles that they burn up completely inside the cylinder.

"The coal first is crushed to 200 mesh. Then we send it to Brookhaven National Laboratory for irradiation with atomic energy. The sources of this radiation are waste products from atomic reactors. Under the impact of this gamma radiaiton—similar to radium and X-rays—the already fine grains of coal split up into particles measured in microns.

"A micron is one twenty-five thousandth of an inch. Such coal dust floats in the air like smoke. It mixes with the oil and increases its energy content when used as diesel fuel."

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